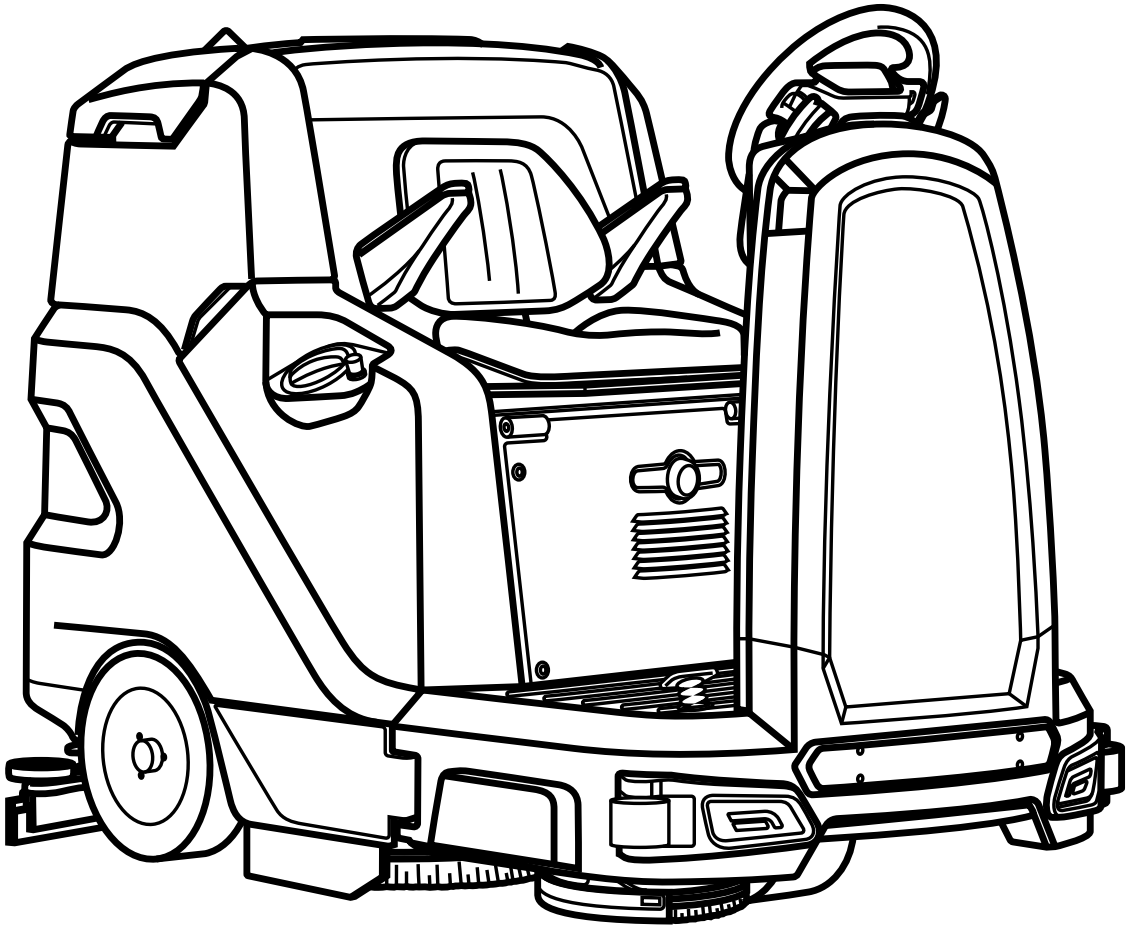
MAGNA



PROFESSIONAL SCRUBBING MACHINES

USE AND MAINTENANCE MANUAL

FIMAP®

ORIGINAL INSTRUCTIONS DOC. 10080263 - Ver. AE - 04-2021

CONTENTS

GENERAL DESCRIPTION

The descriptions contained in this document are not binding. The company therefore reserves the right to make any modifications at any time to elements, details, or accessory supply, as considered necessary for reasons of improvement or manufacturing/commercial requirements. The reproduction, even partial, of the text and drawings contained in this document is prohibited by law.

The company reserves the right to make any technical and/or supply modifications. The images are for reference purposes only, and are not binding in terms of design and supply.

GENERAL SAFETY REGULATIONS

Before using the machine, please read the following document carefully and follow the instructions contained herein, along with the instructions in the document supplied with the machine itself, "GENERAL SAFETY REGULATIONS" (document code 10083659).

SYMBOLS USED IN THE MANUAL

Open book symbol with an "i":
Indicates the need to consult the instruction manual.

Open book symbol:
Tells the operator to read the user manual before using the device.

Covered place symbol:
The operations preceded by this symbol must always be carried out in a dry, covered area.

Information symbol:
Indicates additional information for the operator, to improve the use of the device.

Warning symbol:
Carefully read the sections preceded by this symbol meticulously following the instructions indicated for the safety of the operator and the device.

Danger symbol (corrosive substances):
The operator should always wear protective gloves to avoid the risk of serious injury to the hands caused by corrosive substances.

Danger symbol (battery acid leakage):
Indicates the danger of leaking acid or acid fumes from the batteries while they are being recharged.

Danger symbol (moving carriages):
Indicates that the packed product should be handled with suitable carriages that conform to legal requirements.

Mandatory room ventilation symbol:
Informs the operator that the room must be ventilated while the batteries are being recharged.

Symbol indicating the compulsory use of protective gloves:
Indicates that the operator should always wear protective gloves, to avoid the risk of serious injury to his hands from sharp objects.

Symbol indicating the compulsory use of tools:
Informs the operator of the need to use tools not included with the machine.

Symbol indicating a treading ban:
Informs the operator that it is forbidden to tread on machine components, as this could lead to serious injury.

Recycling symbol:
Tells the operator to carry out the operations in compliance with environmental regulations in force in the place where the appliance is being used.

Disposal symbol:
Carefully read the sections marked with this symbol for disposing of the appliance.

PURPOSE AND CONTENT OF THE MANUAL

The aim of this manual is to provide customers with all the information needed to use the machine in the safest, most appropriate and most autonomous way. This includes information concerning technical aspects, safety, operation, downtime, maintenance, spare parts and scrapping. The operators and qualified technicians must carefully read the instructions in this manual before carrying out any operations on the machine. If in doubt about the correct interpretation of instructions, contact your nearest Customer Service Centre to obtain the necessary clarifications.

STORING THE USE AND MAINTENANCE MANUAL

The Use and Maintenance Manual must be stored in its special pouch close to the machine, protected from liquids and anything else that could compromise its legibility.

ON CONSIGNMENT OF THE MACHINE

When the machine is consigned to the customer, an immediate check must be performed to ensure all the material mentioned in the shipping documents has been received, and also to check the machine has not suffered damage during transportation. If this is the case, the carrier must ascertain the extent of the damage at once, informing our customer service office. It is only by prompt action of this type that the missing material can be obtained, and compensation for damage successfully claimed.

INTRODUCTORY COMMENT

Any floor scrubbing machine can only work properly and effectively if used correctly and kept in full working order by performing the maintenance operations described in the attached documentation. We therefore suggest you read this instruction booklet carefully and read it again whenever difficulties arise while using the machine. If necessary, remember that our assistance service (organised in collaboration with our dealers) is always available for advice or direct intervention.

IDENTIFICATION DATA

For technical assistance or to request replacement parts, always give the model, the version and the serial number (written on the relevant plate).

TECHNICAL DESCRIPTION

The **Magna** is a floor scrubbing machine that can work on various types of floor and dirt thanks to the mechanical action of a brush and the chemical action of a water-detergent solution. As it advances, it collects the dirt removed, along with the detergent solution not absorbed by the flooring itself. **The machine must only be used for this purpose**.

INTENDED USE

This scrubbing machine was designed and built for the cleaning (scrubbing and drying) of smooth, compact flooring in the commercial, residential and industrial sectors by a qualified operator in proven safety conditions. The scrubbing machine is not suitable for cleaning rugs or carpet floors. It is only suitable for use in closed (or at least covered) places.

ATTENTION: the machine is not suitable for use in the rain, or under water jets.

ATTENTION: IT IS FORBIDDEN to use the machine for picking up dangerous dusts or inflammable liquids in places with an explosive atmosphere. In addition, it is not suitable as a means of transport for people or objects.

SAFETY

Operator cooperation is paramount for accident prevention. No accident prevention programme can be effective without the full cooperation of the person directly responsible for machine operation. The majority of occupational accidents that happen either in the workplace or whilst moving are caused by failure to respect the most basic safety rules. An attentive, careful operator is most effective guarantee against accidents and is fundamental in order to implement any prevention programme.

REGULATIONS

All references to forwards and backwards, front and rear, right and left indicated in this manual should be understood as referring to the operator in the driving position, with his/her hands on the control handlebars.

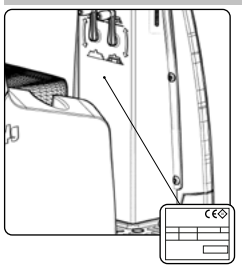
TARGET GROUP

This manual is written both for operators and for qualified machine maintenance technicians. Operators must not perform operations that should be carried out by qualified technicians. The manufacturer is not liable for damages resulting from failure to comply with this veto.

TECHNICAL DATA

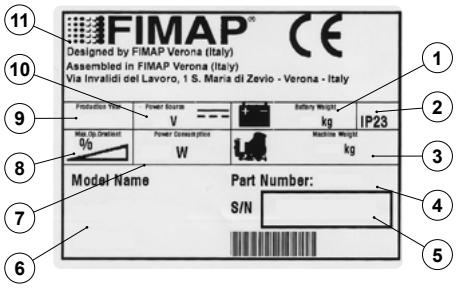
TECHNICAL DATA	SI [KMS]	Magna	Magna Cylindrical
Nominal input power [IEC 60335-2-72; IEC 62885-9]	kW	3,05	3,05
Gradeability when working with GVW (maximum period of use 20 seconds)	%	8	8
Machine weight during transport [IEC 62885-9]	kg	837	837
GVW [IEC 60335-2-72; IEC 62885-9])	kg	1205	1224
Sound pressure level (ISO 11201) - L_{pa}	dB (A)	69	70
Uncertainty K_{pa}	dB (A)	1,5	1,5
Body vibration level (ISO 2631)	m/s^2	0,5	0,5

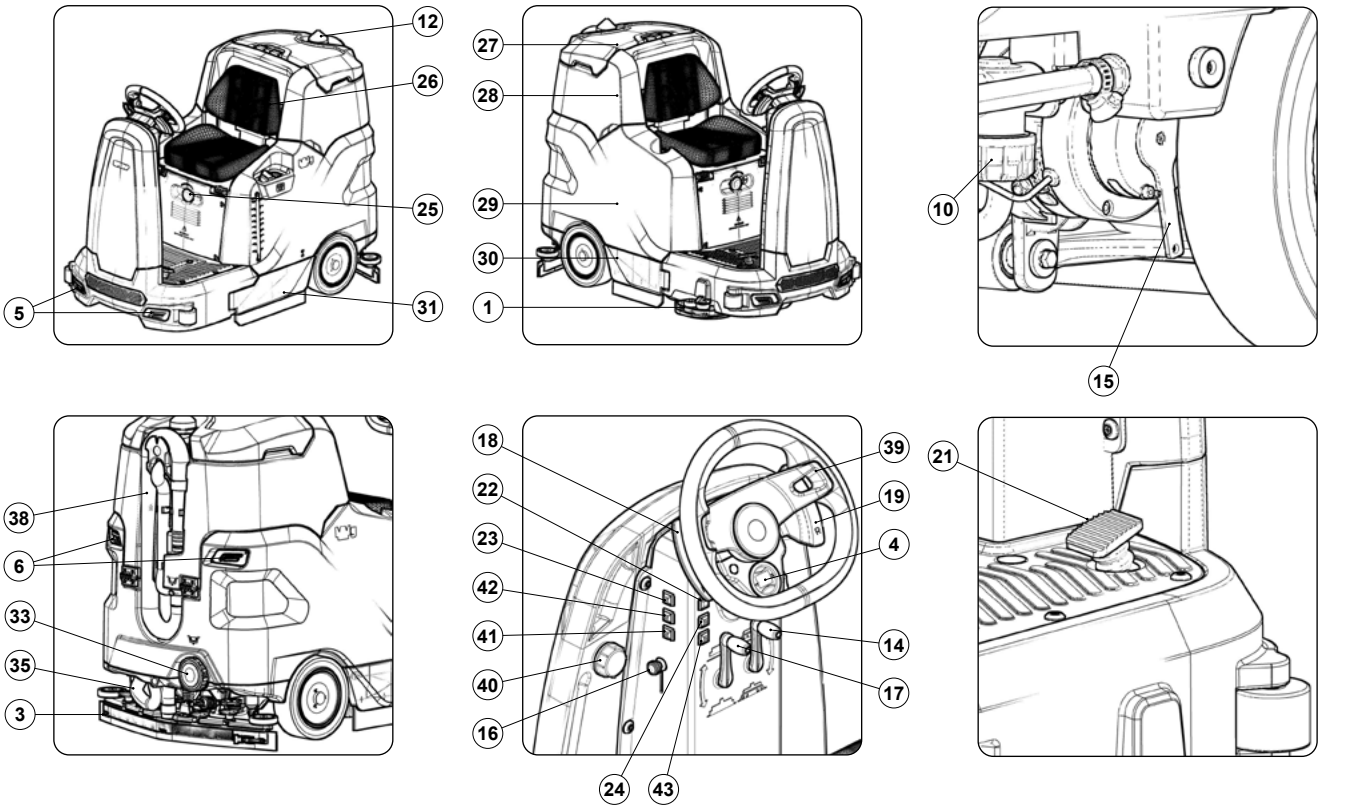
SERIAL NUMBER PLATE



The serial number plate is located at the rear of the steering column, and indicates the machine's general characteristics, including its serial number. The serial number is a very important piece of information and should always be provided together with any request for assistance or when purchasing spare parts. The serial number plate contains the following:

1. The weight of the batteries used to power the appliance (expressed in Kg).
2. The IP protection rating of the appliance.
3. The gross weight of the appliance (expressed in Kg).
4. The identification code of the appliance.
5. The serial number of the appliance.
6. The name of the appliance.
7. The nominal power consumed by the appliance (expressed in W).
8. The maximum grade that the appliance can handle during work activities (expressed in %).
9. The year in which the appliance was manufactured.
10. The nominal voltage of the appliance (expressed in V).
11. The commercial name of the appliance and the manufacturer's address.





MAIN MACHINE COMPONENTS

The machine's main components are the following:

1. Lateral scrubbing brush head (optional).
2. Scrubbing brush head.
3. Squeegee body.
4. Hour meter display – battery charge level.
5. Headlights (optional).
6. Tail lights (optional).
7. Vacuum motor air intake filter.
8. Vacuum motor air duct filter.
9. Recovery tank filter.
10. Detergent solution filter.
11. Main key switch.
12. Blinking light (optional).
13. Brush head extra pressure LED indicator.
14. Brush head control lever.
15. Electric brake control lever.
16. Detergent solution tap control lever.
17. Squeegee control lever.
18. Brush head extra pressure selection lever.
19. Reverse gear selection lever.
20. Service brake pedal.
21. Drive pedal.
22. Horn button.
23. Button for activating the automatic dosing system or the automatic recycle system (optional).
24. Side brush control button (optional).
25. Emergency button.
26. Operator seat
27. Recovery tank lid.
28. Recovery tank.
29. Solution tank.
30. Right hatch.
31. Left hatch.
32. Squeegee support.
33. Solution tank drainage shaft cap.
34. Solution tank cap.
35. Squeegee vacuum hose.
36. Solution tank rapid filling hose.
37. Solution tank level hose.
38. Recovery tank drainage hose.
39. Steering wheel.
40. Detergent canister cap (version with automatic dosing system).
41. Button activating the spray gun (optional).
42. Button adjusting the automatic dosing system (optional).
43. Button activating the vacuum wand (optional).

CHOOSING AND USING BRUSHES

POLYPROPYLENE BRUSH (PPL)
Used on all types of floors. Good resistance to wear and tear, and hot water (no greater than 50°C.). PPL is non-hygroscopic and therefore retains its characteristics even when working in wet conditions.

ABRASIVE BRUSH
The bristles of this type of brush are charged with highly aggressive abrasives. It is used to clean very dirty floors. To avoid floor damage, work only with the pressure strictly necessary.

BRISTLE THICKNESS
Thicker bristles are more rigid and are therefore used on smooth floors or floors with small joints.
On uneven floors or those with deep joints, it is advisable to use softer bristles which can enter the gaps more easily.
Remember that when the bristles are worn and therefore too short, they will become rigid and are no longer able to penetrate and clean deep down. In this case, like with over-large bristles, the brush tends to jump.

PAD HOLDER
The pad holder is recommended for cleaning shiny surfaces.
There are two types of pad holder:

1. The traditional pad holder is fitted with a series of anchor points that allow the abrasive floor pad to be held and dragged while working.
2. the CENTRE LOCK type pad holder not only has anchor points, but also a snap-type central locking system in plastic that allows the abrasive floor pad to be perfectly centred and held without any risk of it becoming detached. This type of pad holder is recommended above all for machines with more than one brush, where the centring of the abrasive discs is difficult.

TYPE OF BRUSH (SCRUBBING VERSION)

CODE	QTY	Ø EXTERNAL	TYPE OF BRISTLE	NOTES
447244	2	Ø460mm	PPL Ø0.6	WHITE CENTRAL BRUSH
447246	2	Ø460mm	PPL Ø0.9	BLACK CENTRAL BRUSH
447248	2	Ø460mm	ABRASIVE	CENTRAL BRUSH
447251	2	Ø440mm	-	CENTRAL PAD HOLDER
427709	1	Ø290mm	PPL Ø0.3	BLUE SIDE BRUSH
427710	1	Ø290mm	PPL Ø0.6	WHITE SIDE BRUSH
427711	1	Ø290mm	PPL Ø0.9	BLACK SIDE BRUSH
427712	1	Ø290mm	ABRASIVE	SIDE BRUSH
427713	1	Ø280mm	-	SIDE PAD HOLDER

TYPE OF BRUSH (SWEEPING VERSION)

CODE	QTY	Ø EXTERNAL	LENGTH	TYPE OF BRISTLE	NOTES
447963	2	200mm	856mm	PPL 0.6mm	CENTRAL BRUSH
447964	2	200mm	856mm	PPL 0.9mm	CENTRAL BRUSH
447965	2	200mm	856mm	ABRASIVE	CENTRAL BRUSH
437874	2	450	-	PPL 1mm	SIDE BRUSH

SYMBOLS USED ON THE MACHINE

Filter body position symbol:
Applied to the left-hand side of the machine to indicate the position of the solution tank's filter.

P

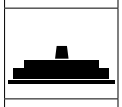
Extra pressure activation/deactivation lever position symbol:
Applied to the central brush head's extra pressure activation/deactivation lever.

R

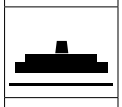
Reverse gear activation/deactivation lever position symbol:
Applied to the reverse gear activation/deactivation lever.

Brush head body working position symbol:
Applied to the steering column to indicate the brush head control lever direction of rotation for bringing the brushes to their working position.

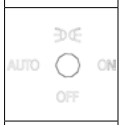
Brush head body standby position symbol:
Applied to the steering column to indicate the brush head control lever direction of rotation for bringing the brushes to their standby position.



Squeegee body working position symbol:
Applied to the steering column to indicate the squeegee control lever direction of rotation for bringing the squeegee to its working position.



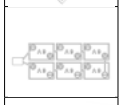
Squeegee body standby position symbol:
Applied to the steering column to indicate the squeegee control lever direction of rotation for bringing the squeegee to its standby position.



Symbol for activation/deactivation of the blinking lights:
Applied to the front of the machine, to indicate the blinking lights switch.

Recovery tank drainage hose symbol:
Applied to the back of the machine to identify the recovery tank's drainage hose.

Solution tank drainage cap symbol:
Applied to the back of the machine to identify the solution tank's drainage cap.



Battery connection symbol:
Applied beneath the recovery tank to indicate how to connect the 6V or 18V batteries in order to obtain a total voltage of 36V.

Symbol for maximum temperature for filling the solution tank:
Applied to the left-hand side of the machine's solution tank to indicate the maximum temperature of the water that can be used to safely fill the solution tank.

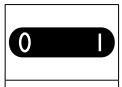
Solution tank filling symbol:
Located on the left side of the machine's solution tank to indicate the amount of water or detergent solution in the tank. The symbol on the side indicates that the tank is full to about a quarter of its capacity.

Solution tank filling symbol:
Located on the left side of the machine's solution tank to indicate the amount of water or detergent solution in the tank. The symbol on the side indicates that the tank is full to about a half of its capacity.

Solution tank filling symbol:
Located on the left side of the machine's solution tank to indicate the amount of water or detergent solution in the tank. The symbol on the side indicates that the tank is full to about three-quarters of its capacity.

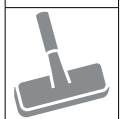
Solution tank filling symbol:
Located on the left side of the machine's solution tank to indicate the amount of water or detergent solution in the tank. The symbol on the side indicates that the tank is full.

LABELS USED ON THE MACHINE

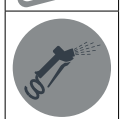


Main switch symbol:
Applied to the control panel, positioned on the front of the machine, to indicate the main switch.

Acoustic signalling device control label:
Applied in the vicinity of the steering column to indicate the acoustic signalling device's control button.

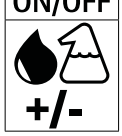


Vacuum wand control label (optional):
Applied near the steering column to indicate the control button for the optional vacuum wand kit.



Spray gun control label (optional):
Applied near the steering column to indicate the control button for the optional spray gun kit.

Label for the automatic detergent dosing system (optional):
Applied near the steering column to indicate the button for activating or switching off the optional detergent dosing system.



Label for adjusting the automatic detergent dosing system (optional):
Applied near the steering column to indicate the button for adjusting the automatic detergent dosing system.

Label for the detergent solution automatic recycling system control (optional):
Applied near the steering column to indicate the button for activating or switching off the optional detergent solution automatic recycling system kit.

Label for the side brush control (optional):
Applied near the steering column to indicate the button for activating or switching off the side brush control system.

Label for detergent solution tap command:
Applied in the vicinity of the control column to identify the detergent solution tap's control lever.

FFM alarm activation label (optional):
Applied in the vicinity of the emergency mushroom button, to identify the button activating a request for assistance.

Label indicating the need to read the Use and Maintenance Manual:
Applied in the vicinity of the steering column in order to remind the operator to read the user and maintenance manual before using the machine.

Treading ban label:
Located on the machine, to identify the surfaces that must not be trodden on (risk of personal injury or damage to the machine).

Label warning about the risk of crushed hands:
Indicates danger to hands due to crushing between two surfaces.

Warning label:
Affixed to the machine in order to warn the operator to read the user and maintenance manual (this document) before using the machine for the first time. Also indicates the applicable procedures for properly caring for the machine itself.

Solution tank filter daily care warning label:
Applied to the machine to remind the operator to clean the solution tank after each use.

Vacuum motor filter label:
Applied inside the vacuum cover to identify the vacuum motor intake air filter, and also serves to remind the operator to clean the filter after each machine use.

Braking system oil level check label:
Located near the braking system oil basin, to remind the operator to check the level of oil in the basin.
The bottom part of the label shows the recommended oil for the braking system.

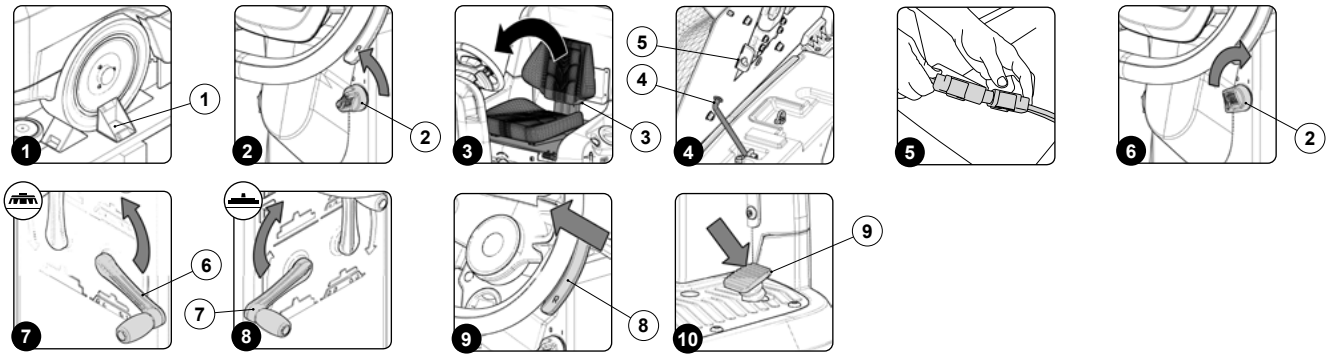
Vacuum wand optional accessories kit position label:
Applied above the recovery tank cover to identify and position the accessories of the vacuum wand optional kit.

HANDLING THE PACKAGED MACHINE

The overall dimensions of the entire package are: length = 2030mm width = 1280mm height = 1605mm while the overall mass of the package is 535Kg.

N.B.: it is recommended that all the packaging components be kept for any future machine transportation.

DANGER: Move the packaged product with handling equipment that complies with legal requirements regarding size and mass of the packaging.



HOW TO UNPACK THE MACHINE

The machine is shipped in specific packaging. To remove it, proceed as follows:

1. Place the lower part of the outer packaging in contact with the floor.

N.B.: use the pictograms printed on the box as a reference.

2. Remove the outer package.

WARNING: the machine is contained in specific packaging materials, whose elements (plastic bags, staples, etc.) can pose potential hazards, and must not be left within reach of children, disabled persons, etc.

3. Remove the boxes containing the disc brushes and squeegee body from the machine.

CAUTION: these operations must be carried out using protective gloves to avoid any possible contact with the edges or tips of metal objects.

4. At the rear of the machine position the three ramps present in the package.

ATTENTION: the three ramps should be positioned so they are centred with the wheels of the machine, so that the machine is not damaged during its descent.

5. The machine is fixed to the pallet with wedges (1) that block the wheels (**Fig.1**). Remove these wedges.
6. Check that the main switch on the control panel has been set to “0”. If this is not the case, turn the key (2) a quarter turn anti-clockwise (**Fig.2**). Remove the key from the main switch.
7. Grip the back of the seat (3) and turn the seat support plate to its maintenance position (**Fig.3**).

ATTENTION: to prevent the seat from rotating, insert the retainer (4) into the slot (5) (**Fig.4**).

8. Connect the backup battery carriage's connector to the machine's main system connector (**Fig.5**).
9. Grip the back of the seat (3) and turn the seat support plate to the working position.

N.B.: before rotating the seat support plate, remove the retainer (4).

10. Sit on the driver’s seat.
11. Insert the key (2) into the main switch on the control panel. Set the main switch to “I”, turn the key a quarter turn clockwise (**Fig.6**).
12. Turn the brush head control level (6) anti-clockwise (**Fig.7**); in this way the brush head body will be raised off the pallet.
13. Turn the squeegee control lever (7) clockwise (**Fig.8**) to raise the squeegee body off the pallet.
14. Engage the reverse gear using the reverse gear activation - deactivation lever (8) (**Fig.9**).
15. Press the drive pedal (9) (**Fig.10**) to begin moving the machine.
16. Drive the machine down the ramp.

ATTENTION: during this operation, check there are no people or objects near the machine.

17. Set the main machine switch to “0” (**Fig.2**). Remove the key from the main switch.
18. Get off the machine.

CAUTION: when getting down from the machine, do not place your foot on the scrubbing brush head or side brush head brush.

19. Grip the back of the seat (3) and turn the seat support plate to the maintenance position.
20. Grip the handle (4) and lift the recovery tank to its maintenance position.
21. Disconnect the backup battery carriage connector from the main machine system connector.
22. Grip the handle (4) and lower the recovery tank to its working position.
23. Grip the back of the seat (3) and turn the seat support plate to the working position.

HOW TO MOVE THE MACHINE

To transport the machine safely, proceed as follows:

⚠ **DANGER:** before starting any task, make sure the current regulations concerning the safe transport of dangerous substances are scrupulously observed.

1. Check to make sure that the solution tank and the recovery tank are empty. If this is not the case, empty them (see the sections titled "EMPTYING THE SOLUTION TANK" and "EMPTYING THE RECOVERY TANK").
2. Sit on the driver's seat.
3. Insert the key (2) into the main switch on the control panel. Move the main switch to the "I" position by turning the key (2) a quarter turn clockwise (**Fig.6**).
4. Turn the brush head control lever (6) anti-clockwise (**Fig.7**); in this manner the brush head body will be raised off the floor.
5. Turn the squeegee control lever (7) clockwise (**Fig.8**) to raise the squeegee body off the floor.
6. Press the drive pedal (9) (**Fig.10**) to begin moving the machine.
7. Use a ramp to move the machine up onto the transport vehicle.

⚠ **CAUTION:** during this operation, check there are no people or objects near the machine.

ℹ **N.B.:** the ramp gradient must not be such as to cause damage to the machine as it goes up.

8. Position the machine on the means of transport, and set the main switch to "0" by turning the key (2) a quarter turn anti-clockwise (**Fig.2**). Remove the key from the main switch.
9. Get off the machine.

CAUTION: when getting down from the machine, do not place your foot on the scrubbing brush head or side brush head brush.

10. Grip the back of the seat (3) and turn the seat support plate to its maintenance position (**Fig.3**).

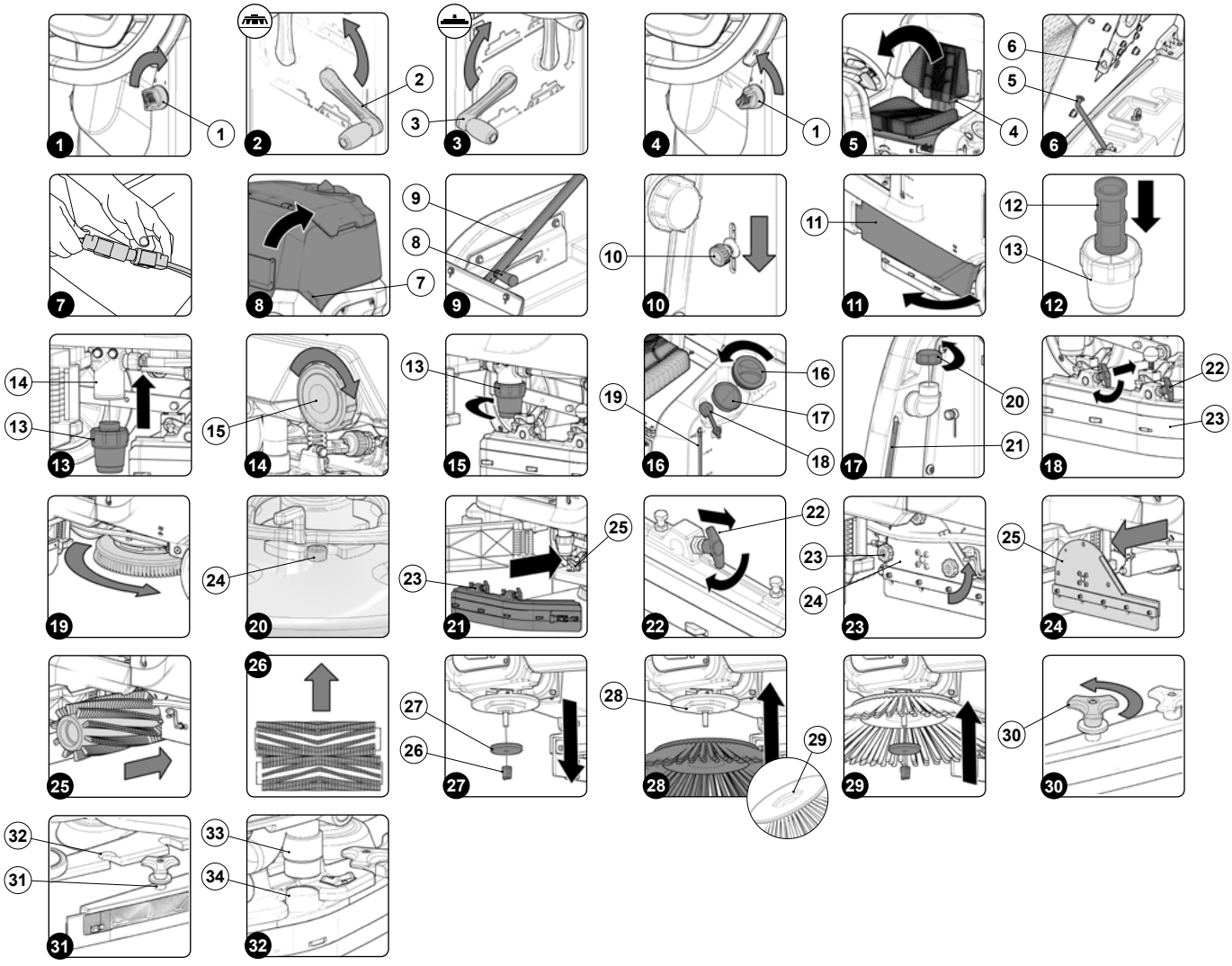
⚠ **ATTENTION:** to prevent the seat from rotating, insert the retainer (4) into the slot (5) (**Fig.4**).

11. Disconnect the battery connector from the machine's main system connector (**Fig.5**).
12. Grip the back of the seat (5) and turn the seat support plate to the working position.

ℹ **N.B.:** before rotating the seat support plate, remove the retainer (4).

⚠ **WARNING:** secure the device according to the directives in force in the country of use, so that it cannot slide or tip over.

PREPARATION OF MACHINE



MACHINE SAFETY

To ensure that work is carried out in the best safety conditions, proceed as follows:

1. Make sure the solution tank is empty. If this is not the case, empty it (read "EMPTYING THE SOLUTION TANK").
2. Make sure the recovery tank is empty. If this is not the case, empty it (read "EMPTYING THE RECOVERY TANK").
3. Sit on the driver's seat.
4. Insert the key (1) into the main switch on the control panel. Set the main switch to "I" by turning the key a quarter turn clockwise (**Fig.1**).
5. Turn the brush head control lever (2) anti-clockwise (**Fig.2**); in this manner the brush head body will be raised off the floor.
6. Turn the squeegee control lever (3) clockwise (**Fig.3**) to raise the squeegee body off the floor.
7. Set the main switch to "0" (**Fig.4**) by turning the key (1) a quarter turn anti-clockwise. Remove the key from the instrument panel.
8. Get off the machine.

CAUTION: when getting down from the machine, do not place your foot on the scrubbing brush head or side brush head brush.

9. Grip the back of the seat (4) and turn the seat support plate to its maintenance position (**Fig.5**).

ATTENTION: to prevent the seat from rotating, insert the retainer (5) into the slot (6) (**Fig.6**).

10. Disconnect the battery connector from the machine's main system connector (**Fig.7**).
11. Grip the back of the seat (4) and turn the seat support plate to the working position.

N.B.: before rotating the seat support plate, remove the retainer (5).

TYPE OF BATTERY TO BE USED

The batteries must meet the requirements laid out in the norms: DIN/EN 60254-2 and IEC 254-2 series L. **To carry out the work well the machine must have a 36V power supply**, we recommend using a 36V 360Ah/C_5 traction battery box.

INSERTING THE BATTERIES IN THE MACHINE

To fit the batteries inside the machine, contact an FIMAP assistance centre technician.

WARNING: FIMAP declines all responsibility for any damage to property or injury persons in the event that the batteries are replaced by an unauthorized technician.

BATTERY MAINTENANCE AND DISPOSAL

For battery maintenance and recharging, respect the instructions provided by the battery manufacturer.
When the batteries reach the end of their service life, they must be disconnected by a FIMAP assistance centre technician or by a specialised and properly trained worker, and must be subsequently removed from the battery compartment using suitable lifting devices.

N.B.: dead batteries are classified as dangerous waste and as such must be delivered to an authorized body for disposal.

RECHARGING THE BATTERIES

The batteries must be charged prior to first use, and whenever they no longer provide sufficient power.

N.B.: Carefully read the Use and Maintenance Manual for the batteries you wish to use before charging.

1. Bring the appliance to the zone where the batteries are charged.
2. Make sure the machine has been secured (see the section titled “SECURING THE MACHINE”).

ATTENTION: Park the appliance in an enclosed place, on a flat surface; near the appliance there must be no objects that could either damage it, or be damaged through contact with it.

ATTENTION: the room used to recharge the batteries must be adequately ventilated to prevent the accumulation of gases that leak from batteries.

3. Get off the machine.

CAUTION: when getting down from the machine, do not place your foot on the scrubbing brush head or side brush head brush.

4. Grip the back of the seat (4) and turn the seat support plate to its maintenance position (**Fig.5**).

ATTENTION: to prevent the seat from rotating, insert the retainer (5) into the slot (6) (**Fig.6**).

5. Disconnect the battery connector from the machine's main system connector (**Fig.7**).

ATTENTION: the following operations must be carried out by qualified personnel. An incorrect connection of the connector may cause a malfunction of the device.

6. Connect the external battery charger cable to the battery connector.

N.B.: the coupling connector of the battery charger is consigned inside the bag containing this instruction booklet, and must be assembled on the cables of the battery charger as indicated in the instructions.

ATTENTION: Before connecting the batteries to the battery charger, make sure it is suitable for the batteries you want to use.

N.B.: carefully read the use and maintenance instructions of the battery charger that is used for charging.

CAUTION: keep the recovery tank open for the duration of the battery recharging cycle to allow gas fumes to escape.

7. Once the recharge cycle has been completed, disconnect the battery charger's cable from the battery connector.
8. Connect the electrical system connector to the battery connector (**Fig. 7**).
9. Grip the back of the seat (4) and turn the seat support plate to the working position.
10. Grip the handle (7) and lower the recovery tank to the maintenance position (**Fig.8**).

ATTENTION: to prevent the recovery tank from rotating, grip the handle (8) on the safety stop lever (9) and position the lever in the stop slot (**Fig.9**).

INSERTING WATER SYSTEM FILTER

Before using the machine for the first time the water system filter needs to be reset, for shipping reasons the filter cartridge and the cap have been removed. To insert the filter cartridge in the water system filter body proceed as follows:

1. Take the machine to the maintenance area.
2. Make sure the machine has been secured (see the section titled “SECURING THE MACHINE”).

CAUTION: it is recommended to wear the appropriate PPE (Personal Protective Equipment), suitable for the work to be carried out.

3. Close the tap's output flow, and shift the knob (10) on the left hand side of the steering column (**Fig.10**) downward.
4. Open the machine's left lateral hatch (11) (**Fig.11**).
5. Insert the filter cartridge (12) in the housing on the cap (13) (**Fig.12**).

N.B.: The O-ring gasket in the filter cartridge should be inserted into its seat in the cap.

6. Screw the cap (13) onto the body of the detergent solution filter (14) (**Fig.13**).

N.B.: For the sweeping versions, the water system filter is located on the right of the machine.

FILLING THE SOLUTION TANK

Before filling the solution tank, carry out the following steps:

1. Take the machine to the usual place for filling the solution tank.
2. Perform the procedure for securing the machine (see the section titled “SECURING THE MACHINE”).
3. Check to make sure that the solution tank drainage cap (15) is closed. If this is not the case, close it (**Fig.14**).
4. Move to the left side of the machine and open the left side casing (11) (**Fig.11**).
5. Check to make sure that the water system filter cap (13), located on the rear left-hand side of the machine, is closed, and close it if necessary (**Fig.15**).

The solution tank can be filled with water in two different ways:

- Removing the cap (16) and filling the solution tank by means of a rubber hose or a bucket (**Fig.16**).

N.B.: Check that the filter (17) under the filler cap (16) is positioned correctly; this is to prevent impurities and dirt causing the appliance's water system to malfunction (**Fig.16)**.

- Using the filler hose (18) (**Fig.16**). This supports the water hose on its own, but be sure to remove the cap (16) to allow adequate air venting.

6. Fill with clean water, at a temperature not higher than 50°C and not lower than 10°C. The amount inside the tank can be seen by means of the level tube (19) on the front left of the seat (**Fig.16**).

DETERGENT SOLUTION

For the versions without automatic detergent dosing system, after filling the solution tank with clean water, add the liquid detergent to the tank in the concentration and manner indicated on the detergent manufacturer's label. To prevent the formation of an excessive amount of foam that could damage the vacuum motor, use the minimum percentage of detergent required.

CAUTION: protective gloves should always be worn before handling detergents or acidic or alkaline solutions, to avoid serious injury to the hands.

ATTENTION: always use detergents whose manufacturer's label indicates their suitability for scrubbing machines. Do not use acid or alkaline products or solvents without this indication.

ATTENTION: always use low-foam detergent. To avoid the production of foam, put a minimum quantity of antifoam liquid in the recovery tank before starting to clean. Do not use pure acids.

For versions with automatic detergent dosing system, fill the solution tank with clean water and then proceed as follows:

1. Make sure the machine is in a safe condition (read “MACHINE SAFETY”).

CAUTION: protective gloves should always be worn when handling detergents or acidic or alkaline solutions, to avoid serious injury to the hands.

2. Remove the cap (20) of the detergent canister (**Fig.17**).
3. Fill the canister with the desired detergent; it is possible to see the quantity in the detergent canister using the level tube (21) on the front left of the canister (**Fig. 17**).

ATTENTION: always use detergents whose manufacturer's label indicates their suitability for scrubbing machines. Do not use acid or alkaline products or solvents without this indication.

ATTENTION: the dosing system is suitable for frequent maintenance cleaning. Acid or alkaline maintenance detergent can be used with pH values between 4 and 10 and that do not contain: oxidising agents, chlorine or bromine, formaldehyde, mineral solvents. The detergents used must be suitable for use with scrubbing machines. Wash the circuit with water after use if the system is not used daily. The system can be excluded. In case of sporadic use of detergents with pH between 1-3 or 11-14, use the floor scrubbing machine in the traditional way by adding the detergent in the clean water tank and excluding the dosing circuit.

ATTENTION: always use low-foam detergent. To avoid the production of foam, put a minimum quantity of antifoam liquid in the recovery tank before starting to clean. Do not use pure acids.

4. Close the cap (20) correctly to prevent liquid coming out when working.

ASSEMBLING THE BRUSH HEAD BRUSHES (SCRUBBING VERSION)

To fit the brush on the brush head body, proceed as follows:

1. Take the machine to the maintenance area.
2. Make sure the machine has been secured (see the section titled “SECURING THE MACHINE”).

CAUTION: these operations must be carried out using protective gloves to avoid any possible contact with the edges or tips of metal objects.

3. Open the machine's left lateral carter (11) (**Fig.11**).
4. Remove the left-hand splashguard (22) and move the fixing anchors (23) on the brush head body into the maintenance position (**Fig.18**).
5. With the brush head UP, insert the brush in the plate housing underneath the brush head, turning it until the three buttons engage with the niches on the plate itself.
6. Turn in increments until the button is pushed towards the coupling spring and is locked in place (**Fig.19**).

N.B.: The image in **Fig.19** indicates the direction of rotation for coupling the left brush; the right brush must be turned in the opposite direction.

FITTING THE SIDE BRUSH (SCRUBBING VERSION)

To fit the side brush on the brush head body, proceed as follows:

1. Make sure the machine has been secured (see the section titled “SECURING THE MACHINE”).

CAUTION: these operations must be carried out using protective gloves to avoid any possible contact with the edges or tips of metal objects.

2. With the brush head in the rest position, insert the brush into the plate housing underneath the brush head, and turn it until the two buttons (24) engage with the niches on the plate itself (**Fig. 20**).
3. Push the brush until the stopper spring on the brush itself has engaged with the niche present on the gearmotor pin.

FITTING THE BRUSH HEAD BODY SIDE SPLASHGUARDS (WASHING VERSION)

To fit the side splash guards on the brush head body, proceed as follows:

1. Take the machine to the maintenance area.
2. Make sure the machine has been secured (see the section titled “SECURING THE MACHINE”).

CAUTION: these operations must be carried out using protective gloves to avoid any possible contact with the edges or tips of metal objects.

3. Open the machine's left lateral carter (11) (**Fig.11**).
4. With the brush head raised from the floor, position the side splash guard carter on the brush head body, insert the pins (24) in the brush head in the slots (23) in the carter (**Fig.21**).

N.B.: Before inserting the pins (24) in the slots (23) remember to put the fixing anchors (22) in the brush head body in the maintenance position (**Fig.22**).

5. When the side splash guard casing is in position turn the fixing anchors (22) to the work position.
6. Close the left side casing (11) and repeat everything for the right side casing.

ASSEMBLING THE BRUSH HEAD BRUSHES (SWEEPING VERSION)

To fit the brush on the brush head body, proceed as follows:

1. Make sure the machine has been secured (see the section titled "SECURING THE MACHINE").

CAUTION: these operations must be carried out using protective gloves to avoid any possible contact with the edges or tips of metal objects.

2. Open the machine's left lateral carter (11) (**Fig.11**).
3. With the brush head in its resting position, turn the knobs (23) that hold the left lateral carter (24) in place anti-clockwise (**Fig.24**).
4. Remove the left lateral carter (25) (**Fig.25**).
5. Insert the brush into the tunnel (**Fig.26**), taking care to make sure that the gearmotor drive shaft enters the slit in the brush itself.
6. Repeat the previously described operations for the right-hand side as well.

N.B.: In order to be installed correctly, the brushes must form an X when viewed from above in the forward direction of movement (**Fig.26**).

FITTING THE SIDE BRUSH (SWEEPING VERSION)

To fit the brush on the brush head body, proceed as follows:

1. Make sure the machine has been secured (see the section titled "SECURING THE MACHINE").

CAUTION: these operations must be carried out using protective gloves to avoid any possible contact with the edges or tips of metal objects.

2. Stand on the right side of the machine.
3. With the brush head in its raised position, remove the knob (26) that secures the side brush to the gearmotor, by turning it clockwise for the right-hand brush, and anti-clockwise for the left-hand brush (**Fig.27**).
4. Remove the washer (27) holding the side brush in place (**Fig.27**).
5. Insert the side brush, being careful to position the centering hex device (28) correctly in the slot (29) (**Fig.28**).
6. Fix the brush to the flange using the knob (26), remembering to put the washer (27) in between the knob and the brush (**Fig.29**).
7. Once the brush has been fitted, move on to the one on the left.

ASSEMBLING THE SQUEEGEE BODY

For packaging reasons, the squeegee body comes disassembled from the machine. In order to mount it on the squeegee support, do the following:

1. Make sure the machine has been secured (see the section titled "SECURING THE MACHINE").

CAUTION: these operations must be carried out using protective gloves to avoid any possible contact with the edges or tips of metal objects.

2. Unscrew the knobs (30) in the squeegee body pre-assembly (**Fig.30**).
3. First, insert the left pin (31) on the squeegee body into the left slit (32) in the squeegee support (**Fig.31**), so that the bushing adheres to the walls of the slit in the squeegee support.
4. Repeat the same operation for the right pin.
5. Insert the vacuum tube (33) in the sleeve (34) in the squeegee body (**Fig.32**).

N.B.: Although the squeegee comes pre-adjusted, it is nevertheless recommended to read the section entitled "ADJUSTING THE SQUEEGEE BODY RUBBER BLADES".

ADJUSTMENT OF DRIVING POSITION

The proper adjustment of the driving position provides a greater sense of comfort when using the machine.

Correct position on the seat: make sure you sit upright and that your back and that your lower back and spine are at 90°.

Seat adjustment: The seat should always be positioned using the pedals as a reference. To adjust the seat, use the lever located under it.

N.B.: The distance should be adjusted so that with the pedals fully pressed to the floor the knees are slightly bent (about 120°).

N.B.: Adjust the distance of the seat so that when pressing the brake pedal it goes as far as it can. This operation should be done with the machine running so as to pressurise the braking system.

N.B.: If the knee is not bent enough, it is too far from the steering wheel, if however the knee is bent almost 90°then it is too close to the steering wheel.

N.B.: The feet should be positioned keeping the heels on the footrest, the sole of the foot directly below the fingers should push the pedals.

N.B.: The ideal position is that which allows you to grip the steering wheel correctly with the palms slightly lower than the shoulders. With a good grip on the steering wheel, the elbows should be bent by about 120°. They should be at least 30 cm between the middle of the steering wheel and our breastbone. In any case, this distance should be no more than 45 cm.

Adjusting the armrests (optional): the armrests should be inclined to make using the machine comfortable.

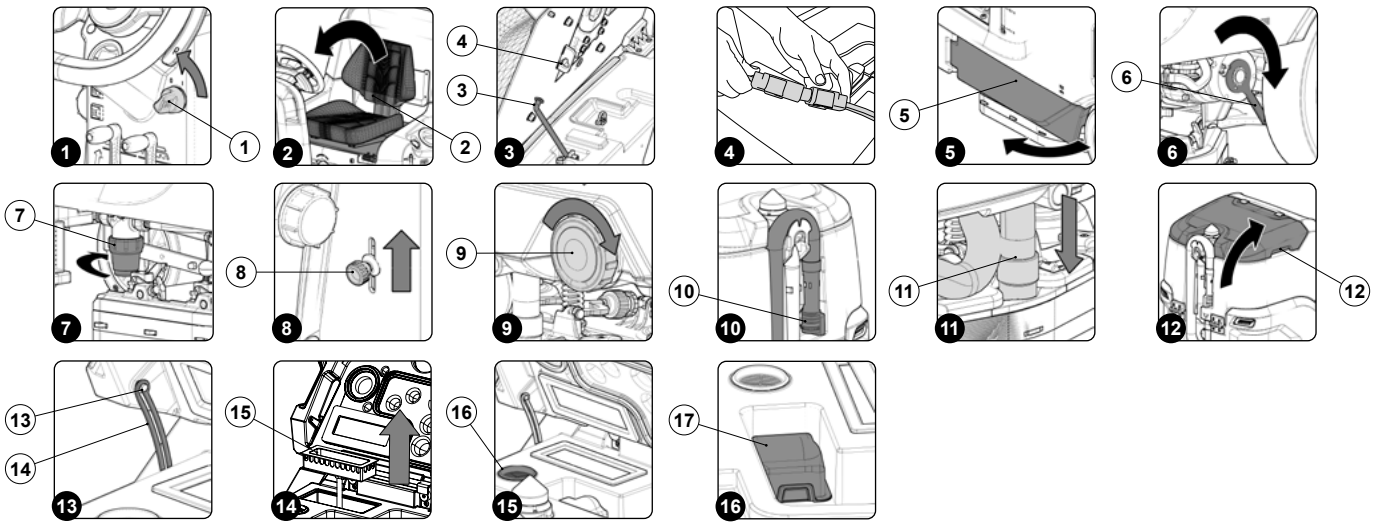
N.B.: To adjust the armrest use the runner located under it.

N.B.: Taking the right armrest as a reference, if the wheel is turned outwards the inclination of the armrest is increased. Taking the left armrest as a reference, if the wheel is turned inwards the inclination of the armrest is increased.

Wear the seatbelt correctly (optional): The machine has a sub-abdominal safety device that allows the operator to be anchored to the driver's seat. To secure the safety belt, you must first be sitting in the driver's seat; take the mobile part of the belt, wrap it round the abdomen and insert the mobile part in the slit in the fixed part.

N.B.: Adjust the horizontal part of the belt so it is as tight as possible on the pelvis. The belt should be pulled and put as low as possible on the pelvis bone, and not on the belly.

PREPARING TO WORK



Before beginning to work, it is necessary to:

1. Make sure the recovery tank is empty. If this is not the case, empty it (read "EMPTYING THE RECOVERY TANK").
2. Check that the amount of detergent solution present in the solution tank is sufficient for the type of work to be performed. If this is not the case, top up the solution tank (see the sections titled "FILLING THE SOLUTION TANK" and "DETERGENT SOLUTION").
3. Check that the squeegee rubbers are in good working condition. If not, carry out maintenance (see "REPLACING THE SQUEEGEE BODY RUBBER BLADES").
4. Check that the condition of the brushes is suitable for the work to be carried out; if not, perform the necessary maintenance (see "ASSEMBLING THE BRUSH HEAD BRUSHES (SCRUBBING VERSION)" or "ASSEMBLING THE BRUSH HEAD BRUSHES (SWEEPING VERSION)").
5. Check that the condition of the brushes is suitable for the work to be carried out; if not, perform the necessary maintenance (see "FITTING THE SIDE BRUSH (SCRUBBING VERSION)" or "FITTING THE SIDE BRUSH (SWEEPING VERSION)").
6. Set the main machine switch to "0" (**Fig.1**). Remove the key from the instrument panel.
7. Get off the machine.

CAUTION: when getting down from the machine, do not place your foot on the scrubbing brush head or side brush head brush.

8. Grip the back of the seat (2) and turn the seat support plate to its maintenance position (**Fig.2**).

ATTENTION: to prevent the seat from rotating, insert the retainer (3) into the slot (4) (**Fig.3**).

9. Connect the battery connector from the main machine system connector (**Fig.4**).
10. Grip the back of the seat (2) and turn the seat support plate to the working position.
11. Move to the left side of the machine and open the left side casing (5) (**Fig.5**).
12. Make sure the electronic brake is engaged. If it isn't, turn the lever (6) in the direction of the arrow (**Fig.6**). The traction gear motor is located on the rear right-hand side of the machine.

13. Make sure the water system filter cap (7) is closed. If it isn't, close it (**Fig.7**).

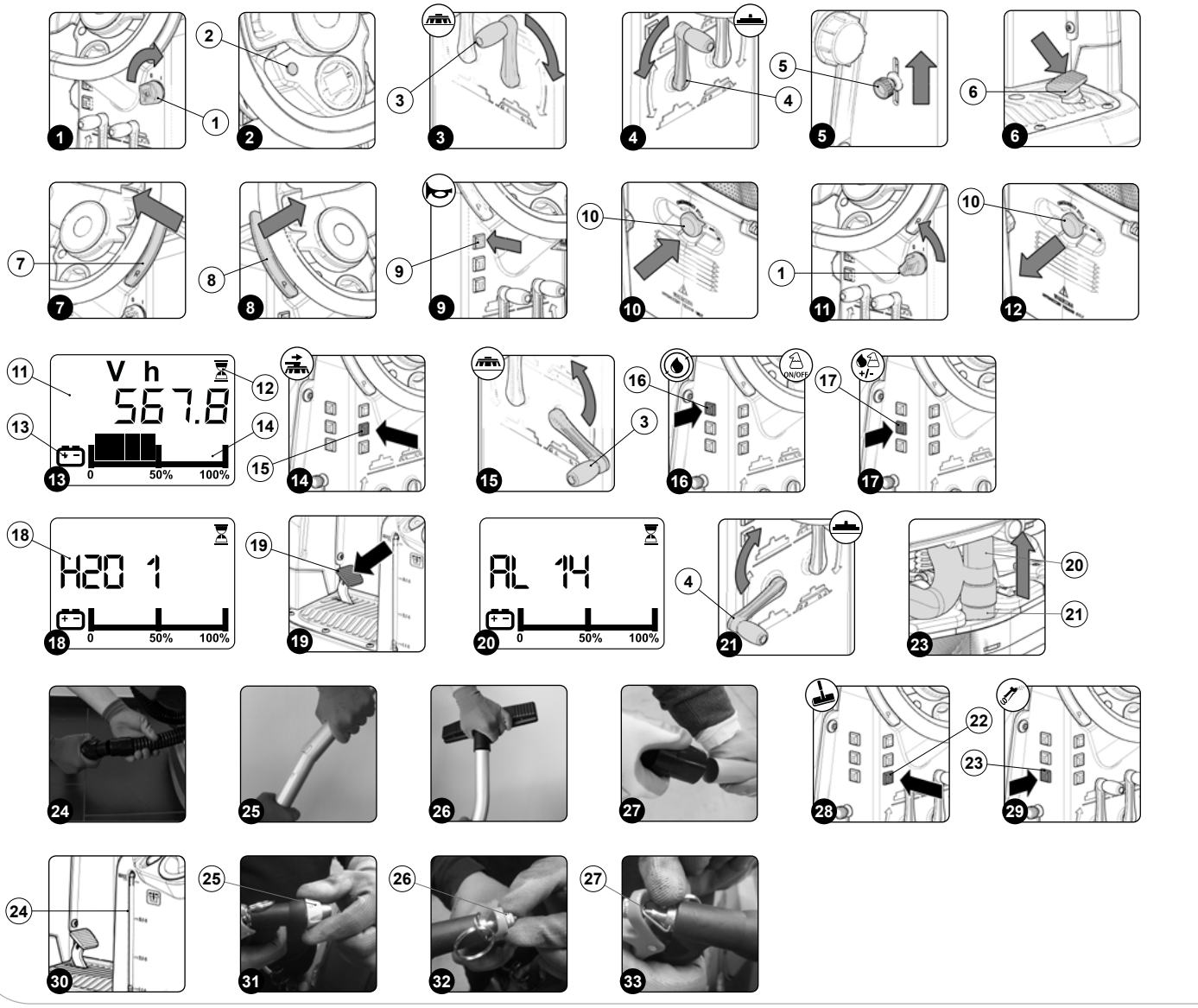
N.B.: For the sweeping versions, the water system filter is located on the right of the machine.

14. Close the left side casing of the machine.
15. Check that the water tap is fully open, move the water adjustment knob (8) in the direction shown by the arrow (**Fig.8**).
16. Stand at the back of the machine.
17. Check that the solution tank drainage cap (9) is closed. If this is not the case, close it (**Fig.9**).
18. Make sure the cap of the recovery tank drainage tube (10) is closed. If it isn't, close it (**Fig.10**).
19. Make sure the vacuum tube (11) is correctly connected to the sleeve in the squeegee body. If it isn't, connect it (**Fig.11**).
20. Grip the handle (12) and raise the recovery tank's lid to its maintenance position (**Fig.12**).

ATTENTION: to prevent the cover from rotating, insert the pin (13) into the support (14) (**Fig.13**).

21. Make sure the anti-wave tray (15) is correctly inserted and is clean (**Fig.14**). If this is not the case, clean it (see "CLEANING THE RECOVERY TANK FILTERS").
22. Make sure the vacuum duct filter (16) is correctly connected and is clean (**Fig.15**). If it isn't, clean it (see "CLEANING THE RECOVERY TANK FILTERS").
23. Make sure the filter-strainer (17) is correctly connected and is clean (**Fig.16**). If it isn't, clean it (see "CLEANING THE RECOVERY TANK FILTERS").

WORK



The machine can be used for the following types of work:

- SCRUBBING WITHOUT DRYING;
- SCRUBBING WITH DRYING;
- DRYING;

As an example, we will look at the SCRUBBING WITH DRYING work type. To begin working in this mode, proceed as follows:

1. Make all the checks listed in “PREPARING TO WORK”.
2. Sit on the driver’s seat.
3. Insert the key (1) into the main switch on the control panel. Bring the main switch to its "I" position by turning the key (1) a quarter turn clockwise (**Fig.1**).

N.B.: As soon as the machine turns on, the control board will perform a diagnostics procedure, during which the red LED indicator (2) on the control panel (**Fig.2**) will remain on.

N.B.: If the control board's diagnostics procedure returns a positive outcome, the red LED indicator (2) on the control panel (**Fig.2**) will turn off, and an acoustic signal will sound indicating that the work operations may be initiated.

4. Lower the brush head body by turning the brush head control lever (3) on the rear part of the steering column (**Fig.3**).
5. Lower the squeegee body by turning the squeegee control lever (4) on the rear part of the steering column (**Fig.4**).
6. Check to make sure that the detergent solution tap is completely open. If this is not the case, adjust the lever (5) on the left-hand side of the steering column (**Fig.5**).
7. Press the drive pedal (6) (**Fig.6**) to begin moving the machine.

N.B.: Once the drive pedal is pressed, the brush head body and the squeegee body will begin to descend into their working positions.

N.B.: Once the brush head body and the squeegee body have reached their working positions, the relative motors will enter into function, and the solenoid valve will dispense the detergent solution.

N.B.: During the first few metres, check that the detergent solution coming out is suitable for the task in hand. If it isn't, adjust it after reading the section "REGULATING THE DETERGENT SOLUTION".

8. The machine will now begin to work with full efficiency until the battery is flat or until the detergent solution has finished.

SCRUBBING WITHOUT DRYING

To carry out “SCRUBBING WITHOUT DRYING” tasks, proceed as follows:

1. Sit on the driver’s seat and turn on the machine.
2. Lower the brush head body by turning the brush head control lever (3) on the rear part of the steering column (**Fig.3**).
3. Check to make sure that the detergent solution tap is completely open. If this is not the case, adjust the lever (5) on the left-hand side of the steering column (**Fig.5**).
4. Press the drive pedal (6) (**Fig.6**) to begin moving the machine.

N.B.: Once the drive pedal has been pressed, the brush head body will begin to descend into its working position.

N.B.: Once the brush head body has reached its working position, the corresponding gear motors will begin to function and the solenoid valve will begin to dispense the detergent solution.

5. During the first few metres, check that the detergent solution coming out is suitable for the task in hand. If it isn't, adjust it after reading the section "REGULATING THE DETERGENT SOLUTION".
6. The machine will now begin to work with full efficiency until the battery is flat or until the detergent solution has finished.

N.B.: If the drive pedal is released during work, the gear motors (on the brush head) and the solenoid valve will stop working.

N.B.: when filling the solution tank, it is good practice to empty the recovery tank using the special drainage hose.

SCRUBBING WITH DRYING

To carry out “SCRUBBING AND DRYING” tasks, proceed as follows:

1. Sit on the driver’s seat and turn on the machine.
2. Lower the brush head body by turning the brush head control lever (3) on the rear part of the steering column (**Fig.3**).
3. Lower the squeegee body by turning the squeegee control lever (4) on the rear part of the steering column (**Fig.4**).
4. Check to make sure that the detergent solution tap is completely open. If this is not the case, adjust the lever (5) on the left-hand side of the steering column (**Fig.5**).
5. Press the drive pedal (6) (**Fig.6**) to begin moving the machine.

N.B.: Once the drive pedal is pressed, the brush head body and the squeegee body will begin to descend into their working positions.

N.B.: Once the brush head body and the squeegee body have reached their working positions, the relative motors will enter into function, and the solenoid valve will dispense the detergent solution.

6. During the first few metres, check that the detergent solution coming out is suitable for the task in hand. If it isn't, adjust it after reading the section "REGULATING THE DETERGENT SOLUTION".
7. The machine will now begin to work with full efficiency until the battery is flat or until the detergent solution has finished.

N.B.: If the drive pedal is released during work, the brush motor and the solenoid valve will stop working, and the suction motor will continue to operate for a few seconds in order to ensure that all the liquid present in the vacuum hose is extracted.

N.B.: when filling the solution tank, it is good practice to empty the recovery tank using the special drainage hose.

DRYING

To carry out “DRYING WITHOUT SCRUBBING” tasks, proceed as follows:

1. Sit on the driver’s seat and turn on the machine.
2. Lower the squeegee body by turning the squeegee control lever (4) on the rear part of the steering column (**Fig.4**).
3. Press the drive pedal (6) (**Fig.6**) to begin moving the machine.

N.B.: Once the drive pedal has been pressed, the squeegee body will begin to descend into its working position.

N.B.: Once the squeegee body has reached its working position, the suction motor will enter into function.

4. The machine will now work at its maximum efficiency level until the batteries run down.

N.B.: If the drive pedal is released during the drying operation, the suction motor will continue to operate for a few seconds in order to ensure that all the liquid present in the vacuum hose is extracted.

ATTENTION: The drying without scrubbing operation should only be carried out if the machine was previously used to carry out a scrubbing without drying operation.

REGULATING THE DETERGENT SOLUTION

To adjust the amount of detergent solution on the brush, proceed as follows:

1. Open the tap's output flow to maximum, and shift the knob on the left hand side of the steering column (5) (**Fig.5**) upward.
2. When the drive pedal is pressed (6) (**Fig.6**), the brush gear motors will enter into function and the solenoid valve will distribute detergent solution to the brushes.
3. During the first few metres, check to make sure that the quantity of solution is sufficient to wet the floor, but not so much as to come out of the splash guard. The detergent leakage can be adjusted using the knob (5) on the steering column.

N.B.: When the knob (5) is moved upwards, the amount of detergent solution distributed to the brushes increases. When the knob (5) is moved downwards, the amount of detergent solution distributed to the brushes decreases.

REVERSE GEAR

This machine is equipped with electronic traction control. To reverse, proceed as follows:

1. Engage the “REVERSE GEAR ACTIVATION/DEACTIVATION” lever (7) underneath the steering wheel (**Fig.7**).
2. Press the drive pedal (6) (**Fig.6**); in this manner the machine will begin to move in reverse.

CAUTION: the reverse speed is lower than the forward speed to comply with current health and safety standards.

N.B.: In order to disengage the reverse gear, disengage the lever (7) underneath the steering wheel (**Fig.7**).

N.B.: Once the lever has been engaged (7), the acoustic signalling device will be activated in order to signal that the machine's reverse gear has been engaged.

N.B.: If the reverse gear is engaged with the squeegee in its working position, once the drive pedal is pressed, the machine will begin to move in reverse and the squeegee body will be raised into its resting position.

N.B.: If the reverse gear is engaged with the brush head in its working position, once the drive pedal is pressed, the machine will begin to move in reverse and the brush head will remain in its working position, but the solenoid valve will stop dispensing detergent solution to the brushes.

EXTRA BRUSH HEAD PRESSURE

This machine is capable of increasing the pressure exerted upon the brushes during the work cycle. This can be done in the following manner:

1. Check to make sure that the brush head body is in contact with the floor. If this is not the case, adjust the brush head control lever (3) on the steering column (**Fig.3**).
2. Engage the “EXTRA-PRESSURE ACTIVATION/DEACTIVATION” lever (8) underneath the steering wheel (**Fig.8**).
3. Press the drive pedal (6) (**Fig.6**) to initiate the machine's working cycle.

N.B.: Once the lever (8) has been engaged, the red indicator light (2) on the steering column will turn on to indicate that the extra-pressure function has been enabled (**Fig. 2**).

BUZZER

The machine is equipped with an acoustic signalling device. If an acoustic signal needs to be emitted, simply press the button (9) on the control panel (**Fig.9**).

WORKING HEADLIGHTS (OPTIONAL)

Upon request, the machine can be equipped with front and rear working lights. These lights can be turned on by setting the main switch to “I”, namely turning the key (1) a quarter turn to the right (**Fig.1**).

EMERGENCY BUTTON

If any problems are encountered during work operations, press the emergency button (10) on the electrical system's cover carter (**Fig.10**).

CAUTION: This command interrupts the electrical circuit between the batteries and the machine system.

N.B.: After having stopped and resolved the problem, the work operations can be resumed by doing the following:
1. Bring the main switch to position "0" by turning the key (1) a quarter turn anti-clockwise (**Fig.11**).
2. Disengage the mushroom-head emergency button (10) (**Fig.12**).
3. Bring the main switch to its "I" position by turning the key (1) a quarter turn clockwise (**Fig.1**).

HOUR METER

The command display is located on the control panel, and the screen that appears after the start-up screen displays the machine's total usage time (11) (**Fig.13**).

N.B.: The digits that precede the "." symbol identify hours, whilst the digit that follows it indicates hour decimals (an hour decimal corresponds to six minutes).

N.B.: When the “hour glass” symbol (12) is flashing, it indicates that the hour meter is counting the appliance operating time (**Fig.13**).

BATTERY CHARGE LEVEL INDICATOR

The control panel is equipped with a control display. The graphic symbol (14) that identifies the charge level of the batteries appears at the bottom of the control display (**Fig.13**).

N.B.: When the minimum remaining charge is reached, the graphic symbol (14) will start to blink, and will turn off after a few seconds, after which the symbol (13) will start to blink. Under these conditions, the machine must be brought to the battery charging area.

N.B.: A few seconds after the battery charge reaches the critical level, the brush motors switch off automatically. With the remaining charge it is possible to complete the drying process before starting the recharge.

N.B.: A few seconds after the battery charge level reaches the discharge level (2), the suction motor switches off automatically.

BRAKING CONTROL

The machine has an encoder to help braking and also a mechanical brake. If the machine is moving and the accelerator pedal (6) is released, the machine brakes, decelerating gently, until it stops the encoder. Only when the encoder has stopped is the electric brake engaged. If the machine is moving and the brake pedal (19) (**Fig.19**) is pressed, the machine brakes according to braking force of the mechanical system. Only when the encoder has stopped is the electric brake engaged.

ALARM SCREEN

If there is an error, the writing AL is shown on the control display followed by a number (**Fig.20**), this stays visible until the error is resolved. When an error occurs, do as follows:

1. Stop the machine immediately.
2. If the error persists, switch off the machine, wait for at least ten seconds and switch on the machine.
3. If the error persists contact the nearest service centre.

The alarms can be divided into the following groups:

- Lockout alarms: these can only be reset by switching off the machine; they may entail the immediate stopping of the entire machine or a part thereof.
- Manual reset alarms: these can be reset manually via the user interface; they may entail the immediate stopping of the entire machine or a part thereof.
- Automatic reset alarms: these are reset automatically once the error has been resolved; they may entail the immediate stopping of the entire machine or part thereof.

ALARM NUMBER	DESCRIPTION	LOCK	MANUAL	AUTOMATIC
AL_1: General	Memory error	X		
AL_2: General	Key fault	X		
AL_3: General	Undervoltage	X		
AL_4: General	Overvoltage	X		
AL_5: General	Batt. connection	X		
AL_6: General	Dashboard communication			X
AL_7: General	FFM communication			X
AL_8: General	Internal communication 1	X		
AL_9: General	Internal communication 2	X		
AL_10: General	Enter tag	X		
AL_11: General	Invalid tag	X		
AL_12: General	Update in progress…			X
AL_13: General	Switch-off	X		
AL_14: General	Recovery tank full			X
AL_15: General	Brake fluid Reserve		X	
AL_41: Function	Overtemperature	X		
AL_42: Function	Power board damaged	X		
AL_43: Function	Main fuse faulty	X		
AL_44: Function	Main contactor faulty	X		
AL_45: Function	Main contactor faulty - CC	X		
AL_46: Function	Overcurrent - brush outputs 1-2-3	X		
AL_47: Function	Overcurrent - vacuum cleaner outputs 1-2	X		
AL_48: Function	Overcurrent - water pump outputs	X		
AL_49: Function	Amperometric - brush output 1		X	
AL_50: Function	Amperometric - brush output 2		X	
AL_51: Function	Amperometric - brush output 3		X	

ALARM NUMBER	DESCRIPTION	LOCK	MANUAL	AUTOMATIC
AL_52: Function	Amperometric - vacuum cleaner output 1		X	
AL_53: Function	Amperometric - vacuum cleaner output 2		X	
AL_60: Function	Time-out Actuator 1	X		
AL_61: Function	Amperometric Actuator 1		X	
AL_62: Function	Overcurrent Actuator 1	X		
AL_63: Function	Incorrect limit switches - actuator 1	X		
AL_64: Function	Time-out Actuator 2	X		
AL_65: Function	Amperometric Actuator 2		X	
AL_66: Function	Overcurrent Actuator 2	X		
AL_67: Function	Incorrect limit switches - actuator 2	X		
AL_68: Function	Time-out Actuator 3	X		
AL_69: Function	Amperometric Actuator 3		X	
AL_70: Traction	Overcurrent Actuator 3	X		
AL_71: Traction	Incorrect limit switches - actuator 3	X		
AL_80: Traction	Overtemperature	X		
AL_81: Traction	Power board damaged	X		
AL_82: Traction	Main fuse faulty	X		
AL_83: Traction	Main contactor faulty	X		
AL_84: Traction	Main contactor faulty - CC	X		
AL_85: Traction	Overcurrent - traction output	X		
AL_86: Traction	Amperometric - traction output		X	
AL_87: Traction	Motor reading	X		
AL_88: Traction	Electric brake fault			X
AL_89: Traction	Pedal fault	X		
AL_90: Traction	Pedal pressed			X
AL_91: Traction	Encoder fault			X

ACTIVATING THE SIDE BRUSH (OPTIONAL)

If the side brush needs to be used during the floor scrubbing operations, and therefore with the brush head in its working position, press the side brush head activation/deactivation button (15) on the left-hand side of the steering column (**Fig.14**).

N.B.: When the side brush is in function, the LED indicator light inside the button (15) will be on.

N.B.: By pressing the button (15), the side brush head will begin to move towards the outside of the machine, and the solenoid valve will only begin to dispense the detergent solution once it has reached its working position (valid only for scrubbing versions).
By pressing the button (15) the side brushes will start to move towards the floor and the gear motors of the side brushes will start to work (valid only for sweeping versions).

N.B.: In order to bring the side brush head back to its resting position, press the button (15) (valid only for scrubbing versions).
In order to bring the side brushes back to their resting positions, press the button (15) (valid only for sweeping versions).

N.B.: If the central brush head is raised with the side brush head in its working position, the lever (3) on the steering column (**Fig.15**) can be turned in order to bring the side brush head back to its resting position as well. The LED indicator inside the button (14) will nevertheless remain on to indicate that if the central brush head is brought back to its working position, the side one will move to the right (valid only for scrubbing versions).
If the central brush head is raised with the side brush head in its working position, by turning the lever (3) on the steering column (**Fig.15**) the side brushes can also be brought back to the resting position. The LED indicator inside the button (15) will nevertheless remain on to indicate that if the central brush head is brought back to its working position, also the side brushes will be brought into contact with the floor (valid only for scrubbing versions).

ACTIVATING DETERGENT SOLUTION RECYCLING (FLR VERSION)

Upon request the machine can be fitted with a system that allows the detergent solution to be recycled so that productivity can be increased, since the number of stops needed to empty and fill the tanks is reduced. As a result less water and detergent are used, thereby making the operator safer, who comes into contact with the chemical products less frequently, and the operation is more environmentally friendly. If the machine being used features the system for recycling the detergent solution, once the machine has been started up, press the FLR system activation - deactivation button (16), on the left side of the steering column (**Fig.16**). Once the work operations have been completed, remember to shut off the FLR system by pressing the button (16).

N.B.: When the FLR system is in function, the LED indicator light inside the button (16) will be on.

N.B.: At the end of the working day, perform all the procedures listed in the "ARECOMMENDED ROUTINE MAINTENANCE" section.

AUTOMATIC DETERGENT MEASURING SYSTEM (FSS VERSION)

Upon request, the machine can be fitted with a system that measures out the detergent separately from the water in the solution tank. To start it do as follows.

Once the machine has been started up, press the FSS system activation - deactivation button (16) (**Fig.16**) on the left side of the steering column.
Press the detergent solution adjustment button (17), on the left side of the steering column, to select the level you want to use for the task in hand (**Fig.17**).

N.B.: If you press the button (17), the control display will show a code indicating the amount of detergent in the machine's water system. Press the button gradually to cyclically alter the amount of detergent; there are four possible settings (from 0 to 3).

N.B.: If the command display shows the code H2O 0 (18), the machine will not dispense detergent (**Fig.18**). This mode is used when the floor is already wet or in general when the chemical action of water and detergent solution is not necessary.

N.B.: With each press of the button (17), the amount of solution released into the machine water system will increase by one level. Once the maximum level has been reached, a further press on the button will return you to level 0 (no solution dispensed).

N.B.: Passing from one step to another is a continuous cycle - it is not possible to go back except by continuing to the end of the scale and starting again from zero. If the machine is switched off via the main switch, the flow of detergent will return to step -03.

N.B.: If this system is used, the water adjustment tap must always be at its maximum setting; move the knob (5) upwards (**Fig.5**).

AUTOMATIC REQUEST FOR TECHNICAL ASSISTANCE (FFM VERSION)

The machine has an automatic service for activating an urgent technical assistance request. To activate this function, the operator simply needs to press the button under the hatch bearing the symbol “SOS”.

N.B.: in order to activate this urgent technical assistance request the machine needs to be equipped with the FIMAP FLEET MANAGEMENT kit.

N.B.: in order to send a technical assistance request the machine needs to be on and should be in a zone with data traffic coverage.

VACUUM WAND KIT (OPTIONAL)

Upon request, the machine can be fitted with the VACUUM WAND system that vacuums up the detergent solution more accurately. To start it do as follows.

1. Turn the brush head control lever (3) anti-clockwise (**Fig.15**); in this manner the brush head body will be raised off the floor.
2. Turn the squeegee control lever (4) clockwise (**Fig.21**) to raise the squeegee body off the floor.
3. Remove all the vacuum kit components from the storage compartment.
4. Remove the vacuum tube (20) from the sleeve (21) in the squeegee body (**Fig.22**).
5. Connect the wand kit vacuum tube to the squeegee vacuum tube (20) (**Fig.23**).
6. Assemble the steel extension tube (**Fig.24**).
7. Insert the vacuum brush into the extension tube (**Fig.25**).
8. Connect the vacuum tube to the extension tube (**Fig.26**).
9. Press the vacuum wand control button (22), on the back of the steering column, to activate the kit (**Fig.27**).
10. Once the work is finished, remove the kit and place it back in the support that can be found on the upper part of the recovery tank cover.

N.B.: As soon as the button (22) is pressed, the LED on it comes on.

WARNING: never pick up solid matter such as dust, cigarette stubs, paper, etc.

CAUTION: Never collect gases, explosive/inflammable liquids or powders, nor acids and solvents! These include gasoline, paint thinners and fuel oil (which, when mixed with the vacuum air, can form explosive vapours or mixtures), and also non-diluted acids and solvents, acetones, aluminium and magnesium powders. These substances may also corrode the materials used to construct the machine.

CAUTION: If the machine is used in dangerous areas (e.g. petrol stations), the relative safety standards must be observed. It is forbidden to use the machine in environments with a potentially explosive atmosphere.

SPRAY GUN KIT (OPTIONAL)

On request, the machine can be equipped with the spray gun kit. To use this, proceed as follows:

1. Turn the brush head control lever (3) anti-clockwise (**Fig.15**); in this manner the brush head body will be raised off the floor.
2. Turn the squeegee control lever (4) clockwise (**Fig.21**) to raise the squeegee body off the floor.
3. Release the spray gun accessory (at the back of the machine) from the retainers.
4. Activate the vacuum control kit by pressing the button (23); this is located to the rear of the steering column (**Fig.29**).

N.B.: As soon as the button (23) is pressed, the LED on it comes on.

N.B.: With the spray gun kit active, the traction and work functions are deactivated.

CAUTION: When using the optional tank cleaning kit, you are advised to always wear goggles to avoid any risk of serious injury to your eyes.

N.B.: Before using the optional tank cleaning kit, check the level indicator (24) to see how much solution there is in the solution tank (**Fig.30**).

5. Activate the solution jet by pressing the lever in the tank cleaning accessory. Make sure the jet is pointing into the tank before pressing the lever.

N.B.: To adjust the solution jet from the tank cleaning accessory, turn the knob (25) on the accessory itself (**Fig.31**).

N.B.: To adjust the intensity of the solution jet from the tank cleaning accessory, turn the knob (26) on the accessory itself (**Fig.32**).

N.B.: To stop the solution jet, use the lever (27) on the tank cleaning accessory (**Fig.33**).

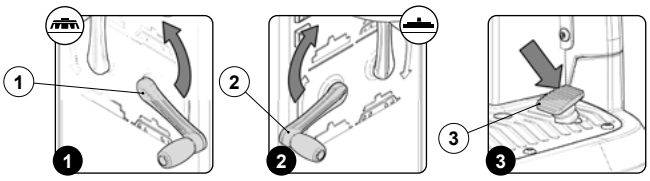
OVERFLOW DEVICE

The machine is not equipped with an overflow device, because the volume of the recovery tank is greater than the capacity of the solution tank. In extraordinary cases, there is a mechanical device (float) under the recovery tank lid that, when the recovery tank is full, shuts off the air to the vacuum motor intake to protect it; the sound of the suction motor will then be deeper. Empty the recovery tank (see "EMPTYING THE RECOVERY TANK").

AT THE END OF THE WORK

At the end of the work, and before carrying out any type of maintenance, perform the following operations:

1. Turn the brush head control level (1) anti-clockwise (**Fig.1**); in this manner the brush head body will be raised off the floor.
2. Turn the squeegee control lever (2) clockwise (**Fig.2**) to raise the squeegee body off the floor.
3. Press the drive pedal (3) (**Fig.3**) to begin moving the machine.



4. Take the appliance to the dedicated dirty water drainage area.
5. Carry out all the procedures listed in the paragraph "RECOMMENDED PERIODIC MAINTENANCE" (in the column "AT THE END OF THE WORK").
6. Once the maintenance work is finished take the appliance to the designated storage place.
7. Secure the machine, see the section titled "SECURING THE MACHINE".

⚠ **ATTENTION:** Park the machine in an enclosed place, on a flat surface, and at a safe distance from any objects that could either damage it or be damaged due to contact with the machine itself.

ROUTINE MAINTENANCE

INTERVAL	MACHINE COMPONENTS	PROCEDURE
DAILY; BEFORE A LONG PERIOD OF INACTIVITY	Squeegee	Clean the vacuum chamber; the squeegee rubber blades; the vacuum nozzle (see "CLEANING THE SQUEEGEE BODY").
	Debris hopper	Empty the debris hopper and clean inside (see "EMPTYING THE DEBRIS HOPPER (SWEEPING VERSION)").
	Brush head brushes	Clean the brushes on the brush head body (see "CLEANING THE BRUSH HEAD BODY BRUSHES (SCRUBBING VERSION)").
		Clean the brushes on the brush head body (see "CLEANING THE BRUSH HEAD BODY BRUSHES (SWEEPING VERSION)").
		Clean the brush on the side brush head body (see "CLEANING THE SIDE BRUSH (SCRUBBING VERSION)").
		Clean the side brushes (see "CLEANING THE SIDE BRUSH (SWEEPING VERSION)").
	Recovery tank	At the end of every working day, empty the recovery tank (see "EMPTYING THE RECOVERY TANK").
		At the end of every working day, after having emptied the recovery tank, clean the vacuum system filters (see "CLEANING THE RECOVERY TANK FILTERS").
		At the end of every working day, after emptying the recovery tank, clean the filter in the detergent solution recycling system (see "CLEANING THE RECYCLE FILTER (FLR VERSION)").
		At the end of every working day, after having emptied the recovery tank, clean the vacuum tube (see "CLEANING THE VACUUM TUBE").
	Solution tank	At the end of every working day, empty the solution tank (see "EMPTYING THE SOLUTION TANK").

INTERVAL	MACHINE COMPONENTS	PROCEDURE
WEEKLY	Machine water system	Clean the filter in the machine's water system (see “CLEANING THE WATER SYSTEM FILTER”).
	Squeegee rubber blades	Check that the rubber blades on the squeegee body are intact and inspect for wear; if necessary, replace these (see “REPLACING THE SQUEEGEE BODY RUBBER BLADES”).
	Brush head brushes	Check that the brushes on the brush head body are intact and inspect for wear; if necessary, replace these (see “ASSEMBLING THE BRUSH HEAD BRUSHES (SCRUBBING VERSION)”.
		Check that the brushes on the brush head body are intact and inspect for wear; if necessary, replace these (see “ASSEMBLING THE BRUSH HEAD BRUSHES (SWEEPING VERSION)”.
MONTHLY	Squeegee rubber blade levelling	Check that the rubber blades on the squeegee body are level and if necessary, adjust these (see “ADJUSTING THE SQUEEGEE BODY RUBBER BLADES”).

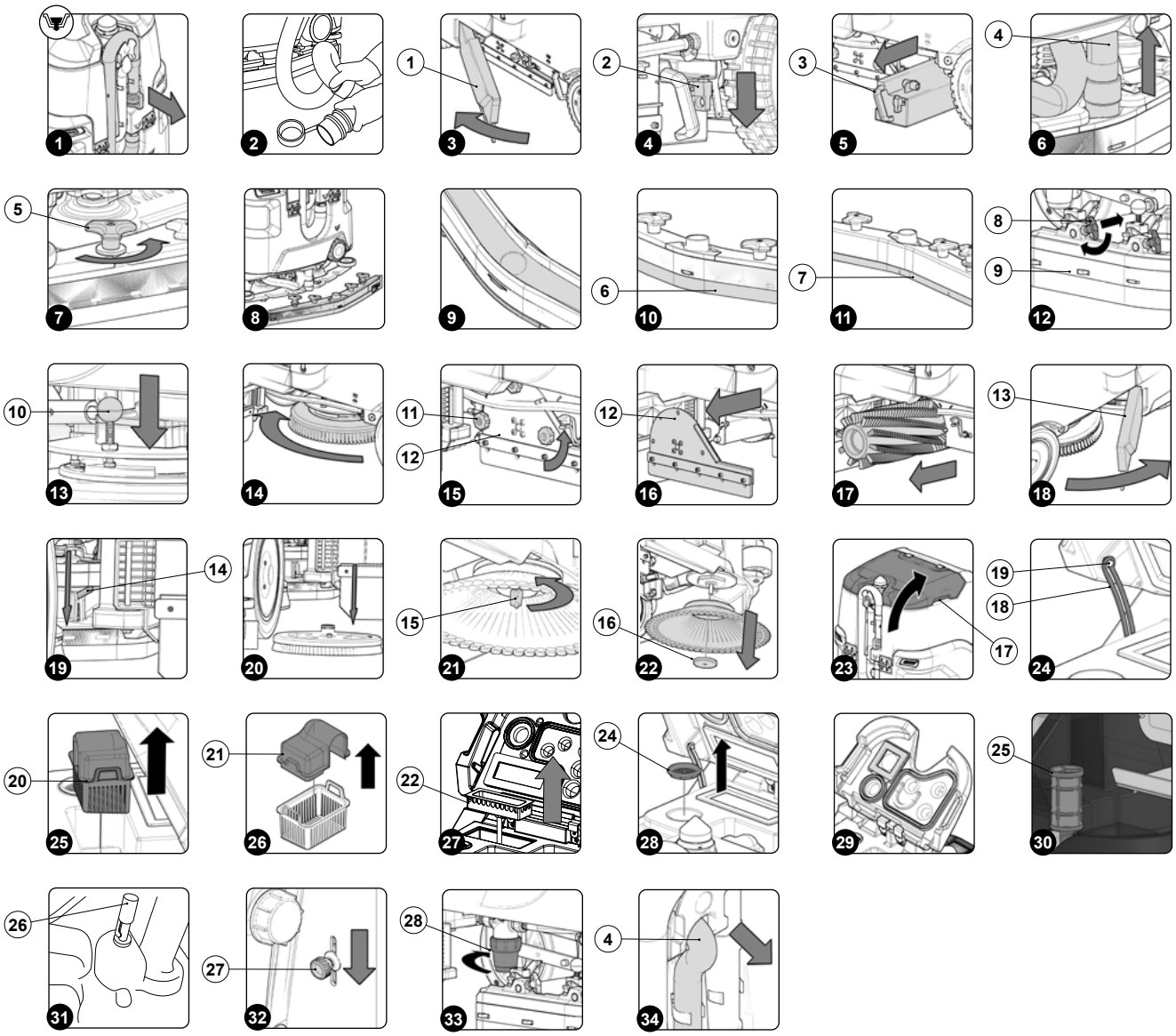
Before carrying out any routine maintenance operations, proceed as follows:

1. Take the machine to the maintenance area.

N.B.: the place designated for this operation must comply with current environmental protection regulations.

2. Make sure the machine is in a safe condition (see chapter “MACHINE SAFETY MEASURES”).

CAUTION: it is recommended to wear the appropriate PPE (Personal Protective Equipment), suitable for the work to be carried out.



DRAINING THE RECOVERY TANK

Proceed as follows to empty the recovery tank:

1. Remove the drainage hose of the recovery tank from the clamps; it is located at the rear of the machine (**Fig.1**).
2. Bend the end of the drainage tube in order to create a choke and prevent the content from coming out (**Fig.2**), then position the tube on the discharge surface, unscrew the cap, and gradually release the tube.
3. Repeat the operations in reverse order to reassemble all the parts.

EMPTYING THE DEBRIS HOPPER (SWEEPING VERSION)

The thorough cleaning of the debris hopper ensures better floor cleaning performance. To empty the debris hopper, proceed as follows:

1. Open the machine's left lateral carter (1) (**Fig.3**).
2. Release the debris hopper locking pin (2) (**Fig.4**).
3. Use the handle (3) to extract the debris hopper (**Fig.5**) and empty it.
4. Clean the inside with a jet of water, and use a brush to remove any residual impurities if necessary.
5. Proceed in the opposite order to reassemble all the parts.

CLEANING THE SQUEEGEE BODY

The careful cleaning of the whole vacuum unit ensures better drying and cleaning of the floor as well as a longer vacuum motor life. To carry out the cleaning of the squeegee body, proceed as follows:

1. Extract the vacuum hose (4) from the vacuum nozzle on the squeegee body (**Fig.6**).
2. Completely unscrew the knobs (5) on the squeegee body pre-assembly (**Fig.7**).
3. Remove the squeegee body from the slits in the squeegee connector (**Fig.8**).
4. Thoroughly clean the squeegee body vacuum chamber with a jet of water, and then with a damp cloth (**Fig.9**).
5. Thoroughly clean the squeegee body rear rubber blade (6) with a jet of water, and then with a damp cloth (**Fig.10**).
6. Thoroughly clean the squeegee body front rubber blade (7) with a jet of water, and then with a damp cloth (**Fig.11**).
7. Thoroughly clean the vacuum nozzle with a jet of water, and then with a damp cloth.
8. Proceed in the opposite order to reassemble all the parts.

CLEANING THE BRUSH HEAD BRUSHES (SCRUBBING VERSION)

Careful cleaning of the brush guarantees better cleaning of the floor as well as a longer brush head gearmotor lifespan. To clean the brush, proceed as follows:

1. Open the machine's left lateral carter (1) (**Fig.3**).
2. Remove the left splashguard casing (8), remembering beforehand to move the fixing anchors (9) on the brush head body into the maintenance position (**Fig.12**).
3. Press the brush locking pin (10) (**Fig.13**).
4. Keeping the pin (10) pressed, turn the brush clockwise until it is released (**Fig.14**).
5. Turn until the button is pushed towards the outside of the coupling spring and is locked into place.
6. Clean the brush under a stream of running water to remove any impurities from its bristles. Check the wear status of the bristles and replace the brushes if they are excessively consumed (the bristles' protrusion must not be less than 10 mm; this distance is indicated on the brush by the yellow band). Read the paragraph “ASSEMBLING THE BRUSH HEAD BRUSHES (SCRUBBING VERSION)” when replacing the brushes.
7. After checking to make sure that the brush is clean, reassemble it and move on to the one on the right hand side.

N.B.: you are advised to invert the right and left-hand brushes every day.

N.B.: The image in **Fig.14** indicates the direction of rotation for uncoupling the left brush; the right brush must be turned in the opposite direction.

ATTENTION: If the brushes are not new however, and have deformed bristles, it is better to reassemble them in the same position (the right-hand one on the right, and the left-hand one on the left), to prevent the different inclination of the bristles producing an overload on the brush motor as well as excessive vibrations.

CLEANING THE BRUSH HEAD BRUSHES (SWEEPING VERSION)

Careful cleaning of the brush guarantees better cleaning of the floor as well as a longer brush head gearmotor lifespan. To clean the brush, proceed as follows:

1. Open the machine's left lateral carter (1) (**Fig.3**).
2. With the brush head in its raised position, turn the knobs (11) that hold the left lateral carter (12) in place anti-clockwise (**Fig.15**).
3. Remove the left lateral carter (12) (**Fig.16**).
4. Extract the brush from inside the tunnel (**Fig.17**). Clean the brush under a stream of running water to remove any impurities from its bristles. Check the bristles. If they are excessively worn, replace the brushes (the bristles should protrude by at least 10mm). Read the paragraph “FITTING THE BRUSH HEAD BRUSHES (SWEEPING VERSION)” for replacing the brushes.
5. After checking to make sure that the brush is clean, reassemble it and move on to the one at the rear.

N.B.: you are advised to invert the right and left-hand brushes every day.

ATTENTION: If the brushes are not new, and have deformed bristles, it is better to reassemble them in the same position in order to prevent the different inclination of the bristles from overloading the brush motor, as well as to prevent excessive vibrations.

CLEANING THE LATERAL BRUSH (SCRUBBING VERSION)

Careful cleaning of the brush guarantees better cleaning of the floor as well as a longer brush head gearmotor lifespan. To clean the brush, proceed as follows:

1. Open the machine's right later carter (13) (**Fig.18**).
2. Move the brush release lever downwards (14) (**Fig.19**).
3. Remove the brush from the side brush head (**Fig.20**).
4. Clean the brush under a stream of running water to remove any impurities from its bristles. Check the bristles. If they are excessively worn, replace the brushes (the bristles should protrude by at least 10mm). See "FITTING THE SIDE BRUSH (SCRUBBING VERSION)" when replacing the brush.
5. After checking to make sure that the brush is clean, reassemble it.

CLEANING THE LATERAL BRUSH (SWEEPING VERSION)

Careful cleaning of the brush guarantees better cleaning of the floor as well as a longer brush head gearmotor lifespan. To clean the brush, proceed as follows:

1. Stand on the right side of the machine.
2. Remove the wing nut (15) fixing the side brush to the gear motor, turning the wing nut anti-clockwise (**Fig.21**).
3. Remove the washer (16) holding the side brush in place (**Fig.22**).
4. Take out the side brush from the pin in the gear motor.
5. Clean the brush under a stream of running water to remove any impurities from its bristles. Check the bristles. If they are excessively worn, replace the brushes (the bristles should protrude by at least 10mm). See "FITTING THE SIDE BRUSH (SWEEPING VERSION)" when replacing the brush.
6. After checking to make sure that the brush is clean, reassemble it and move on to the one on the left hand side.

CLEANING THE RECOVERY TANK FILTERS

In order to clean the filters present inside the recovery tank, do the following:

1. Grip the moulded handles (17) on the recovery tank cover (**Fig.23**).
2. Turn the recovery tank cover until the support (18) fixed to the recovery tank is coupled with the pin (19) fixed to the recovery tank cover (**Fig.24**).
3. Remove the dirty water basket/filter from the support (20) (**Fig.25**).
4. Remove the basket cover (21) from the basket/filter (20) (**Fig.26**).
5. Clean the basket/filter and the basket cover under a jet of water.

N.B.: Use a spatula or brush to eliminate any dirt that is particularly difficult to remove.

6. Use a cloth to dry the basket/filter and basket cover, and place them back inside the recovery tank.
7. Remove the anti-wave tray from the support (22) (**Fig.27**).
8. Clean the tray under a stream of running water.

N.B.: In case of stubborn dirt, use a soft bristle brush to help with cleaning.

9. Remove the suction motor duct filter from its support (24) (**Fig.28**).
10. Clean the suction motor duct filter under a jet of water.

N.B.: Use a spatula to eliminate any dirt that is particularly difficult to remove.

11. Dry the suction motor duct filter with a dry cloth and place it back on its support.
12. Clean the lower part of the vacuum cover with a damp cloth, and carefully clean the filter gaskets (**Fig.29**).
13. Grip the handle and turn the recovery tank cover to its working position.

CLEANING THE RECYCLE FILTER (FLR VERSIONS)

Proceed as follows to empty the recovery tank:

1. With the tank empty, grip the handles (17) moulded on the recovery tank cover (**Fig.23**).
2. Turn the recovery tank cover until the support (18) fixed to the recovery tank is coupled with the pin (19) fixed to the recovery tank cover (**Fig.24**).
3. Remove the recycle filter (25), only valid for FLR versions (**Fig.30**).
4. Rinse the recycle filter thoroughly under the jet of the tank cleaning accessory.

N.B.: Use a spatula to eliminate any dirt that is particularly difficult to remove.

5. Rinse the inside of the recovery tank with a jet of water. If necessary, use a spatula to remove any sludge that may have accumulated at the bottom of the tank.

WARNING: Be sure to also clean the electro-mechanical float (26) inside the tank (**Fig.31**).

6. Repeat the operations in reverse order to reassemble all the parts.

EMPTYING THE SOLUTION TANK

Proceed as follows to empty the solution tank:

1. Close the tap's output flow, and shift the knob (27) on the left hand side of the steering column (**Fig.31**) downward.
2. Open the machine's left lateral hatch (1) (**Fig.3**).
3. Remove the detergent solution filter cap (28) (**Fig.32**).
4. Open the tap's output flow, and shift the knob on the left hand side of the steering column upward.

N.B.: the place designated for this operation must comply with current environmental protection regulations.

5. When the solution tank is empty, repeat the operations in the reverse order to reassemble all the parts.

CLEANING THE WATER SYSTEM FILTER

In order to clean the water system's filter, do the following:

1. Close the tap's output flow, and shift the knob (27) on the left hand side of the steering column (**Fig.31**) downward.
2. Open the machine's left lateral hatch (1) (**Fig.3**).
3. Remove the detergent solution filter cap (28) (**Fig.32**).
4. Rinse the filter cartridge under a jet of water, and use a brush to eliminate any impurities, if necessary.
5. Once the filter cartridge is clean, repeat the operations in the opposite order to reassemble all the parts.

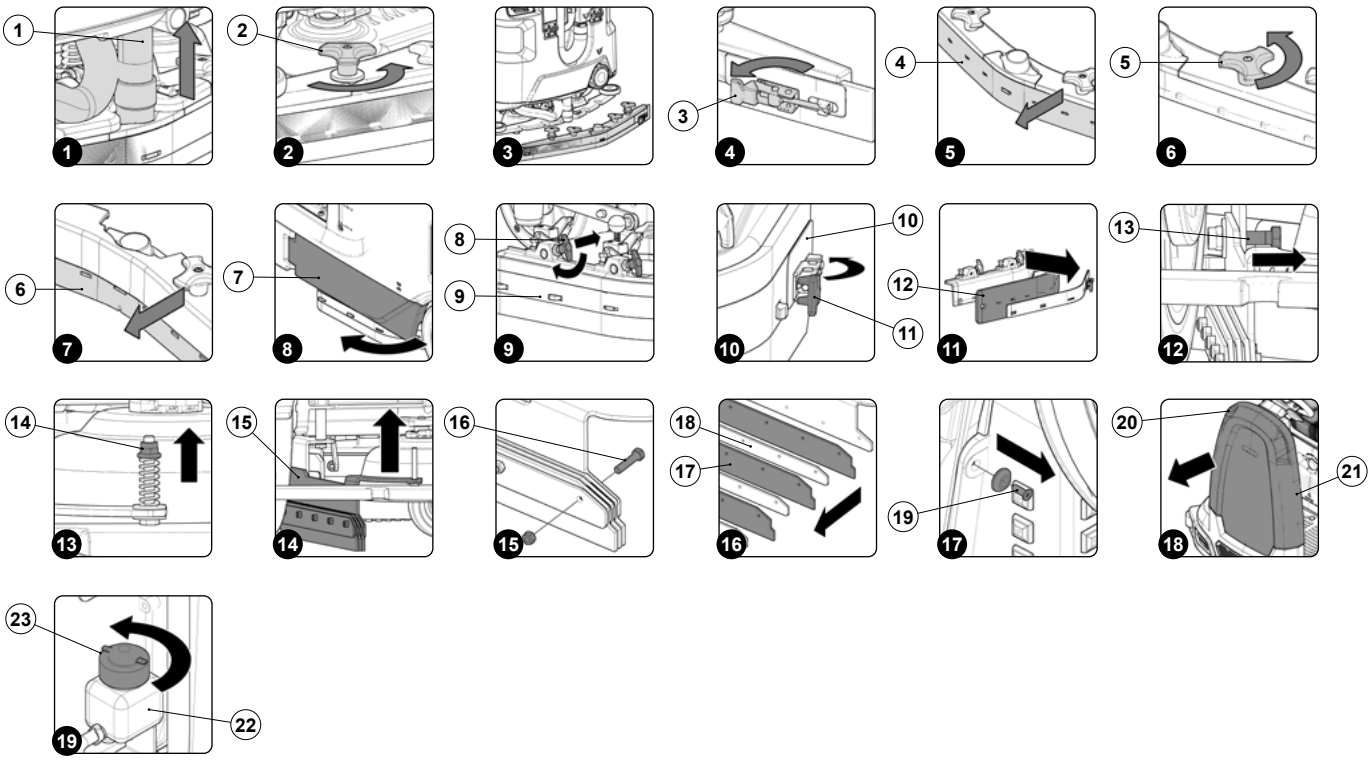
N.B.: For the sweeping versions, the water system filter is located on the right of the machine.

CLEANING THE VACUUM TUBE

Careful cleaning of the vacuum hose guarantees better cleaning of the floor as well as a longer vacuum motor life. Proceed as follows to clean the vacuum hose:

1. Extract the vacuum tube (4) from the vacuum nozzle on the squeegee body (**Fig.6**).
2. Remove the vacuum tube (4) via the hole on the back of the recovery tank (**Fig.34**).
3. The vacuum hose from the retainers present inside the recovery tank.
4. Rinse the inside of the vacuum hose with a jet of running water.
5. Repeat the operations in reverse order to reassemble all the parts.

EXTRAORDINARY MAINTENANCE



Before carrying out any extraordinary maintenance operations, proceed as follows:

1. Take the machine to the maintenance area.

N.B.: the place designated for this operation must comply with current environmental protection regulations.

2. Make sure the machine is in a safe condition (see chapter "MACHINE SAFETY MEASURES").

CAUTION: it is recommended to wear the appropriate PPE (Personal Protective Equipment), suitable for the work to be carried out.

REPLACING THE SQUEEGEE BODY RUBBER BLADES

Ensuring the integrity of the squeegee body's rubber blades guarantees better floor cleaning and drying results, as well as a longer service life for the vacuum motor. In order to replace the squeegee body's rubber blades, do the following:

1. Extract the vacuum hose (1) from the vacuum nozzle on the squeegee body (**Fig.1**).
2. Completely unscrew the knobs (2) in the squeegee body's pre-assembly (**Fig.2**).
3. Remove the squeegee body from the slits in the squeegee connector (**Fig.3**).
4. Remove the rear rubber blade compression plate, and release the stopper (3) at the rear of the squeegee (**Fig.4**).
5. Remove the rear rubber blade (4) from the squeegee body (**Fig.5**).
6. Completely unscrew the knobs (5) in the squeegee body's pre-assembly (**Fig.6**).
7. Remove the front rubber blade (6) from the squeegee's internal body (**Fig.7**).
8. Repeat the operations in reverse order to reassemble all the parts.

N.B.: Before using the machine, remember to adjust the squeegee body: see the section titled "ADJUSTING THE SQUEEGEE BODY'S RUBBER BLADES".

N.B.: It is recommended to replace both squeegee body blades in order to ensure good results when drying the floor.

REPLACING THE BRUSH HEAD SPLASH GUARD

If the splashguard rubber blades of the brush head side casing are damaged they cannot work properly, namely they cannot convey the dirty detergent solution towards the squeegee, therefore the splashguard rubber blades need to be checked. To replace the brush head splashguards, proceed as follows:

1. Open the machine's left side casing (7) (**Fig.8**).
2. Remove the left splash guard body (8) and move the fixing anchors (9) on the brush head body into the maintenance position (**Fig.9**).
3. Remove the rear rubber blade compression plate (10), and release the stopper (11) on rubber blade compression plate (**Fig.10**).
4. Remove the splashguards (12) from the left splashguard body and replace it with a new one or else turn it around (**Fig.11**).

5. Repeat the operations in reverse order to reassemble all the parts.
6. Repeat the operations just carried out also for the right side casing as well.

REPLACING THE SIDE SQUEEGEE SPLASHGUARD RUBBER BLADES

If the splashguard rubber blades of the side squeegee are damaged they cannot work properly, namely they cannot convey the dirty detergent solution towards the squeegee, therefore the rubber blades need to be checked. To replace the brush head splashguards, proceed as follows:

1. Extract the vacuum hose (1) from the vacuum nozzle on the squeegee body (**Fig.1**).
2. Completely unscrew the knobs (2) in the squeegee body's pre-assembly (**Fig.2**).
3. Remove the squeegee body from the slits in the squeegee connector (**Fig.3**).
4. Using the right equipment (not supplied with the machine) remove the screw (13) (**Fig.12**).
5. Using the right equipment (not supplied with the machine) remove the nut (14) (**Fig.13**).
6. Remove the left side squeegee (15) from the machine (**Fig.14**).
7. Using the right equipment (not supplied with the machine) remove the splashguard rubber blade fixing screws (16) (**Fig.15**).
8. Remove the old splashguard rubber blades (17) and replace them with new ones (**Fig.16**).
9. Repeat the operations in the reverse order and reassemble all the parts, then move on to the right side squeegee.

N.B.: remember to put the blade compression plate (18) between one splashguard rubber blade and the other (**Fig.16**).

N.B.: when adjusting the side squeegee remember to leave about 10 mm of the threaded part beyond the self-locking flanged nut (14) (**Fig.12**).

FILLING BRAKING SYSTEM OIL BASIN

If a braking system anomaly alarm is activated when you are working, quickly stop the machine and check the oil level in the machine's brake system.
To check and top up the oil in the braking system, proceed as follows:

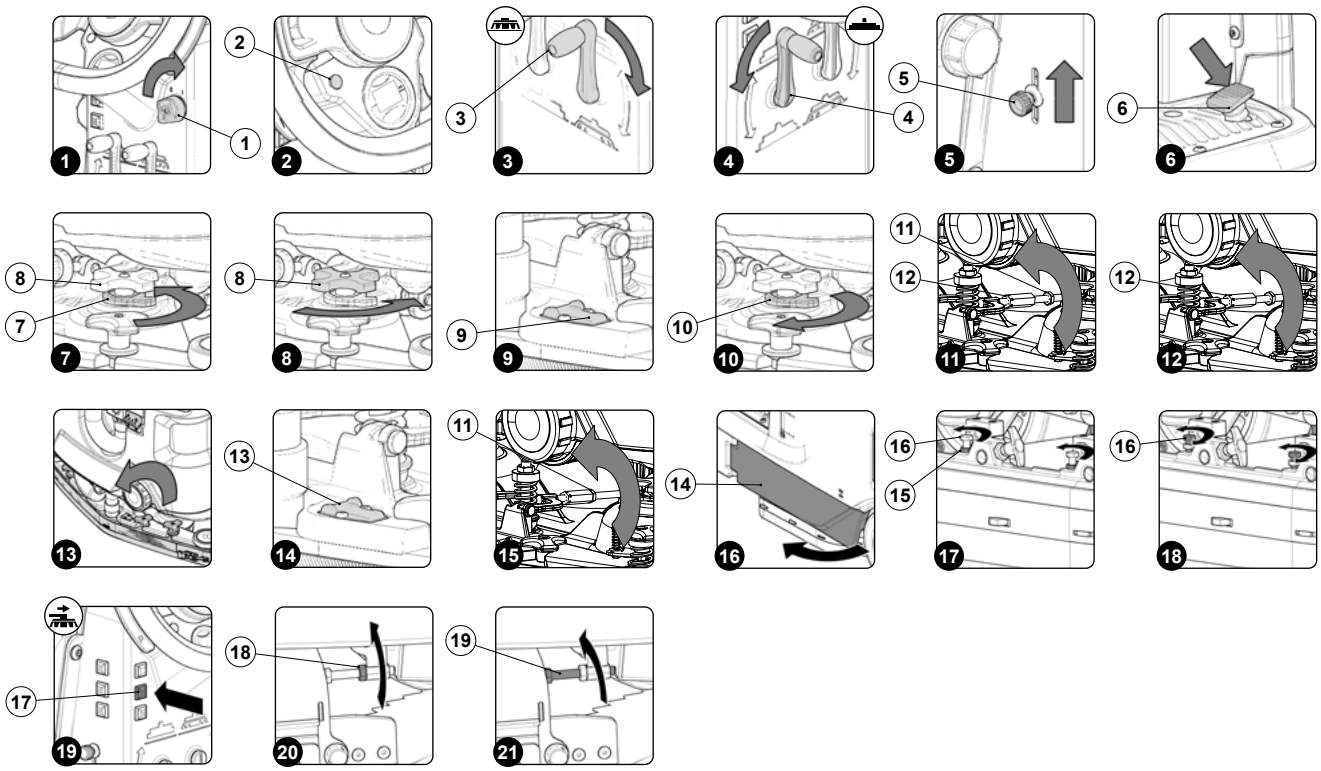
1. Using the right equipment (not supplied with the machine) remove the screws (19) fixing the front fairing to the steering column (**Fig.17**).
2. Using the handles (20), remove the fairing (21) from the machine and lay it on the ground (**Fig.18**).
3. Check the level of oil in the basin (22), if necessary adding fresh oil.
4. To top up the braking system liquid basin, remove the cap-float (23) (**Fig.19**).
5. Put the brake liquid into the basin, being careful not to add too much.

N.B.: for the machine's braking system, use "Shell brake fluid dot 4" brake fluid.

CAUTION: to prevent serious injuries carefully read the product's safety sheet.

N.B.: the place designated for this operation must comply with current environmental protection regulations.

ADJUSTMENT INTERVENTIONS



ADJUSTING THE SQUEEGEE BODY'S RUBBER BLADES

The careful adjustment of the squeegee body rubber blades guarantees better cleaning of the floor.
To adjust the squeegee body blades, proceed as follows:

1. Sit on the driver's seat.
2. Insert the key (1) into the main switch on the control panel. Bring the main switch to its "I" position by turning the key (1) a quarter turn clockwise (**Fig.1**).

N.B.: As soon as the machine turns on, the control board will perform a diagnostics procedure, during which the red LED indicator (2) on the control panel (**Fig.2**) will remain on.

N.B.: If the control board's diagnostics procedure returns a positive outcome, the red LED indicator (2) on the control panel (**Fig.2**) will turn off, and an acoustic signal will sound indicating that the work operations may be initiated.

3. Lower the brush head body by turning the brush head control lever (3) on the rear part of the steering column (**Fig.3**).
4. Lower the squeegee body by turning the squeegee control lever (4) on the rear part of the steering column (**Fig.4**).
5. Check to make sure that the detergent solution tap is completely open. If this is not the case, adjust the lever (5) on the left-hand side of the steering column (**Fig.5**).
6. Press the drive pedal (6) (**Fig.6**) to begin moving the machine.

N.B.: Once the drive pedal is pressed, the brush head body and the squeegee body will begin to descend into their working positions.

7. As soon as the brush head and the squeegee have reached their working positions, perform the procedure for securing the machine (see the section titled "SECURING THE MACHINE").

ATTENTION: these operations must be carried out using protective gloves to avoid any possible contact with the edges or tips of metal objects.

8. Stand at the back of the machine.

Adjusting the height of the squeegee body:

- Release the stopper lever (7) for the squeegee's height adjustment knob (8) (**Fig.7**).
- Adjust the height of the rubber blade in relation to the floor by loosening or tightening the knobs (8) (**Fig.8**).

N.B.: Figure 8 indicates the direction of rotation for decreasing the distance between the squeegee support and the floor. This distance can be increased by turning it in the opposite direction.

N.B.: By decreasing the distance between the squeegee support and the floor, the rubber blades present in the squeegee's body move closer to the floor.

N.B.: the right-hand and left-hand knobs must be rotated the same number of times, so that the squeegee is parallel to the floor when it is working.

N.B.: Check the adjustment is correct by looking at the horizontal bubble gauge (9) on the squeegee body (**Fig.9**).

- Once the adjustment has been completed, engage the stopper lever (10) (**Fig.10**).

Adjusting the tilt of the squeegee body:

- Loosen the stopper knob (11) for the squeegee's tilt adjustment knob (12) (**Fig.11**).
- To adjust the inclination of the squeegee body rubber blades with respect to the floor, tighten or loosen the knob (12) (**Fig.12**), until the squeegee body rubber blades are bent towards the outside evenly along the entire length by about 30° with respect to the floor.

N.B.: Figure 12 indicates the direction of rotation for tilting the squeegee towards the rear of the machine (**Fig.13**). Turn it in the opposite direction to rotate the squeegee towards the front of the machine.

N.B.: Check the adjustment is correct by looking at the horizontal bubble gauge (13) on the squeegee body (**Fig.14**).

- Once the adjustment has been completed, tighten the stopper knob (11) (**Fig.15**).

ADJUSTING THE BRUSH HEAD BODY SIDE SPLASHGUARDS (SCRUBBING VERSION)

If the side splashguards of the brush head body are not positioned correctly they cannot do their work properly, namely convey the dirty detergent solution towards the squeegee, therefore the height of the splashguard needs to be adjusted.
This operation can be done with the brush head body in the work position, proceeding as follows:

1. Sit on the driver's seat.
2. Insert the key (1) into the main switch on the control panel. Bring the main switch to its "I" position by turning the key (1) a quarter turn clockwise (**Fig.1**).

N.B.: As soon as the machine turns on, the control board will perform a diagnostics procedure, during which the red LED indicator (2) on the control panel (**Fig.2**) will remain on.

N.B.: If the control board's diagnostics procedure returns a positive outcome, the red LED indicator (2) on the control panel (**Fig.2**) will turn off, and an acoustic signal will sound indicating that the work operations may be initiated.

3. Lower the brush head body by turning the brush head control lever (3) on the rear part of the steering column (**Fig.3**).
4. Lower the squeegee body by turning the squeegee control lever (4) on the rear part of the steering column (**Fig.4**).
5. Check to make sure that the detergent solution tap is completely open. If this is not the case, adjust the lever (5) on the left-hand side of the steering column (**Fig.5**).
6. Press the drive pedal (6) (**Fig.6**) to begin moving the machine.

N.B.: Once the drive pedal is pressed, the brush head body and the squeegee body will begin to descend into their working positions.

7. As soon as the brush head and the squeegee have reached their working positions, perform the procedure for securing the machine (see the section titled "SECURING THE MACHINE").

ATTENTION: these operations must be carried out using protective gloves to avoid any possible contact with the edges or tips of metal objects.

8. Go to the front left-hand side of the machine.
9. Open the machine's left lateral carter (14) (**Fig.16**).
10. Loosen the retention nuts (15) of the adjusting screws (16) (**Fig.17**).
11. Adjust the height of the splashguard with respect to the floor; tighten or loosen the screws (16) until the splashguard touches the floor along its entire length (**Fig.18**).

N.B.: Both the front and rear of the splashguard need to be at the same height off the floor.

12. Once the adjustment has been completed, tighten the retention nuts (15).
13. Close the left lateral carter (14).
14. Repeat the operations just carried out also for the right side centre as well.

ADJUSTING THE SIDE BRUSH (SWEEPING VERSION)

If the side brush does not channel the dirt efficiently towards the centre of the machine, you must adjust its height in relation to the ground, as follows:

1. Sit on the driver's seat.
2. Insert the key (1) into the main switch on the control panel. Bring the main switch to its "I" position by turning the key (1) a quarter turn clockwise (**Fig.1**).

N.B.: As soon as the machine turns on, the control board will perform a diagnostics procedure, during which the red LED indicator (2) on the control panel (**Fig.2**) will remain on.

N.B.: If the control board's diagnostics procedure returns a positive outcome, the red LED indicator (2) on the control panel (**Fig.2**) will turn off, and an acoustic signal will sound indicating that the work operations may be initiated.

3. Press the side brush head activation - deactivation button (17), on the left side of the steering column (**Fig.19**).

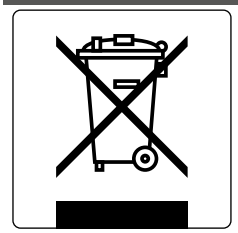
N.B.: When the side brush is in function, the LED indicator light inside the button (17) will be on.

4. Lower the brush head body by turning the brush head control lever (3) on the rear part of the steering column (**Fig.3**).
5. Press the drive pedal (6) to begin moving the machine (**Fig.6**).

N.B.: Only after the drive pedal has been pressed does the central brush head body and side brush begin to descend to the working position.

1. As soon as the central brush head is in the working position, carry out the procedures for securing the machine (see the section "SECURING THE MACHINE").
2. Go to the right side of the machine.
3. Using the right equipment (not supplied with the machine) loosen the counter nut (18) (**Fig.20**).
4. Using the right equipment (not supplied with the machine) loosen the adjusting screw (19) (**Fig.21**), until the bristles of the brush are squashed on the ground by about two centimetres.
5. Once the adjustment is finished, tighten the counter nut and move on to the left side brush.

DISPOSAL



Dispose of the machine in accordance with the waste disposal regulations in force in the country in which the machine is being used.

TROUBLESHOOTING

This chapter lists the most common problems linked with the use of the machine. If you are unable to resolve the problems with the information given here, please contact your nearest assistance centre.

PROBLEM	POSSIBLE CAUSE	SOLUTION
THE MACHINE DOES NOT START	The main switch is set to “0”.	Make sure that the main switch is in its "I" position, otherwise turn the key a quarter turn clockwise.
	Check that when switched on there are no alarm messages on the command display.	Stop the machine immediately, and contact a specialised service centre.
	Make sure that the batteries are correctly connected to each other and that the battery connector is connected to the electrical system connector.	Correctly connect the batteries inside the machine.
	Check the charge level of the batteries.	If the battery charge level is critical, perform a complete recharge cycle (see paragraph CHARGING THE BATTERIES”).
THE BATTERIES ARE NOT CHARGED CORRECTLY	The connector of the battery charger cable is not properly inserted in the battery connector.	Connect the battery charger cable connector to the battery connector again.
	The plug on the battery charger's power cable is not correctly inserted into the electrical outlet.	Check that the battery charger power supply cable plug is connected to the mains socket.
	The characteristics of the mains power supply do not correspond to those required by the battery charger.	Check that the characteristics in the battery charger plate are the same as those of the mains supply.
	The LEDs of the battery charger blink repeatedly.	Referring to the battery charger use and maintenance manual, check the meaning of the flashing signals that the battery charger emits dung the battery recharge stage.
THE MACHINE HAS A VERY LOW WORK AUTONOMY	Check the battery charge level, check the symbol on the command display.	If the battery charge level is critical, perform a complete recharge cycle (see paragraph CHARGING THE BATTERIES”).
THE MACHINE DOES NOT MOVE	The machine does not start.	Read the section “THE MACHINE DOES NOT START”.
	There is an issue on the drive pedal.	Contact your nearest service centre.
INSUFFICIENT DETERGENT SOLUTION ON THE BRUSHES	The quantity of detergent solution in the water system is not sufficient for the work to be carried out.	Check that the amount of detergent solution present in the machine's water system is sufficient for the work to be carried out.
	Detergent solution filter obstructed.	Check the detergent solution filter isn't obstructed. If it is, clean it (see “CLEANING THE WATER SYSTEM FILTER”).
THE MACHINE DOES NOT CLEAN CORRECTLY	The machine does not start.	Read the section “THE MACHINE DOES NOT START”.
	Not enough detergent solution comes out.	Read the section “INSUFFICIENT DETERGENT SOLUTION ON THE BRUSHES”.
	The brushes have not been inserted correctly in the machine.	Check that the disc brushes are correctly inserted inside the machine.
	The type of brush used is not suitable for the dirt to be cleaned.	Check that the brushes on the machine are adequate for the work to be carried out, contact the nearest technical assistance centre.
	The brush bristles are excessively worn.	Check the state of wear of the brush and, if necessary, replace it.

PROBLEM	POSSIBLE CAUSE	SOLUTION
THE SQUEEGEE DOES NOT DRY PERFECTLY	The vacuum unit is obstructed.	Make sure the squeegee is free of obstructions (read “CLEANING THE SQUEEGEE BODY”).
		Make sure the vacuum tube is free of obstructions (see “CLEANING THE VACUUM TUBE”).
		Make sure the vacuum cap filter is free of obstructions (see “CLEANING THE RECOVERY TANK FILTERS”).
		Make sure the suction motor filter is free of obstructions (see “CLEANING THE RECOVERY TANK FILTERS”).
	The cap on the recovery tank drainage tube is not properly positioned.	Check that the cap on the recovery tank drainage tube is positioned properly.
	The recovery tank lid is not positioned correctly.	Check that the recovery tank lid is properly positioned on the machine.
EXCESSIVE FOAM PRODUCTION	The detergent being used is not suitable.	Check that a low foam detergent has been used. If necessary, add a small quantity of anti-foam liquid to the recovery tank.
	The floor is not very dirty.	Dilute the detergent more.
THE MACHINE DOES NOT VACUUM CORRECTLY	The recovery tank is full.	Empty the recovery tank (read “EMPTYING THE RECOVERY TANK”).
	The vacuum device is obstructed	Read the section "THE SQUEEGEE DOES NOT DRY PERFECTLY".

EC DECLARATION OF CONFORMITY

CE

The undersigned manufacturer:
FIMAP S.p.A.
Via Invalidi del Lavoro, 1
37059 Santa Maria di Zevio (VR)
declares under its sole responsibility that the products

FLOOR SCRUBBING MACHINES

mod. Magna - Magna Cylindrical

comply with the provisions of Directives:

- 2006/42/EC: Machinery Directive.
- 2014/30/EU: Electromagnetic compatibility directive.

They also comply with the following standards:

- EN 60335-1:2012/A11:2014
- EN 60335-2-72:2012
- EN 12100:2010
- EN 61000-6-2:2005/AC:2005
- EN 61000-6-3:2007/A1:2011/AC:2012
- EN 62233:2008/AC:2008

The person authorized to compile the technical file:

Mr. Giancarlo Ruffo
Via Invalidi del Lavoro, 1
37059 Santa Maria di Zevio (VR) - ITALY

Santa Maria di Zevio (VR), 11/07/2016

Fimap S.p.A.
Legal representative
Giancarlo Ruffo

UKCA DECLARATION OF CONFORMITY

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FLOOR SCRUBBING MACHINES

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comply with the provisions of Directives:

- Supply of Machinery (Safety) Regulations 2008.
- Electromagnetic Compatibility Regulations 2016.

They also comply with the following standards:

- BS EN 60335-1:2012+A2:2019
- BS EN 60335-2-72:2012
- BS EN 12100:2010
- BS EN IEC 61000-6-2:2019
- BS EN 61000-6-3:2007+A1:2011
- BS EN 62233:2008

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